

Introduction to Managing Mobile Devices Using Linux for System z

Bruce Armstrong, AIM z Strategy Manager
armstrob@us.ibm.com

August 6, 2012

11:00 AM - 12:00 PM, MA, Grand Ballroom Salon C

Session: 12123

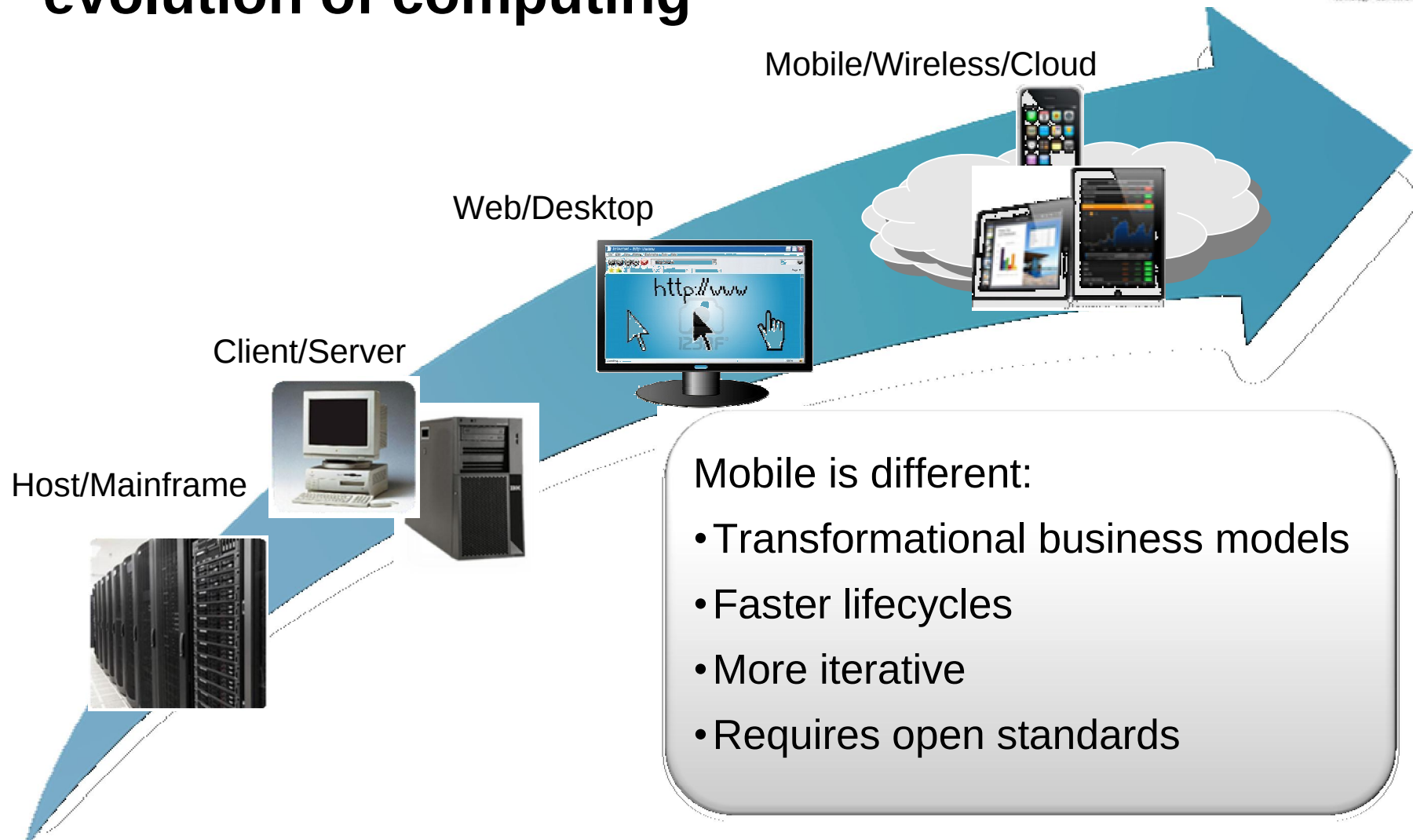
Abstract

- On April 24th of this year, IBM announced the IBM Mobile Foundation 5.0. (Generally available June 15, 2012.) This session will provide an overview of the IBM Mobile Foundation contents and describe the supported Linux environments on System z. The objective is to make the System z Linux system programmer literate in the components of IBM Mobile Foundation and the specific product named IBM Worklight V5.0. As enterprises work to gain control of the challenging mobile environment, System z has a role in deploying mobile applications and mobile devices.

Session Objectives

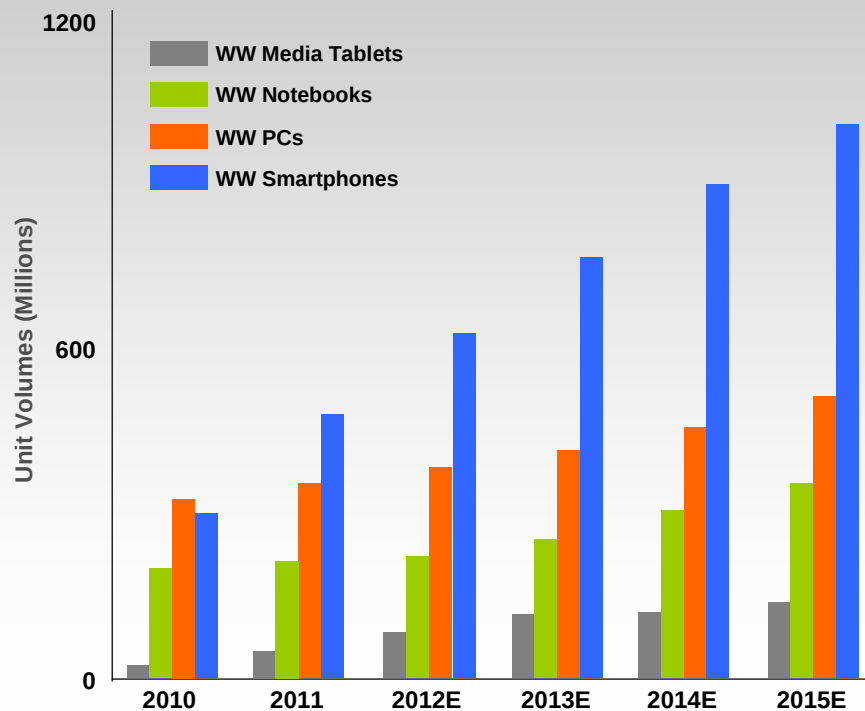
- Name two capabilities of IBM Worklight 5.0 and one of the pre-req runtime environments
- Name the three products that make up IBM Mobile Foundation 5.0 and their high level functions
- Explain: BYOD, B2C, B2E, Native, Hybrid, Shell, Push Notification

Mobile is a significant component of the evolution of computing



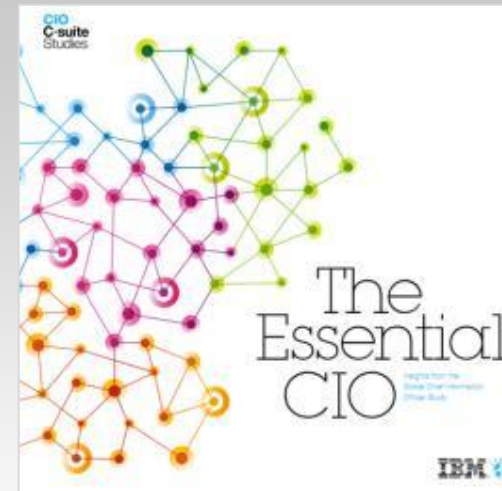
Mobile is an enterprise priority

Growth in Internet Connected Devices



Source: Wells Fargo Securities, January 23, 2012
"Fostering the People: The Shift to Engagement Apps"

Mobile and Cloud are top spending priorities for CIOs¹



Dramatic Growth in Mobile Devices

- Mobile data traffic exceeded voice in 2010²
- Shipments of Smartphones exceeded total PC shipments for the first time in 2011³

¹ 2011 IBM Global CIO Study
² Wireless Industry News, August 26, 2010
³ 2011 Economist

Complete your sessions evaluation online at SHARE.org/AnaheimEval

Mobile is a mandatory transformation

10 Billion devices
by 2020

61% of CIOs put
mobile as priority

45% increased productivity
with mobile apps



Mobile presents an enormous set of opportunities...



Business to Enterprise (B2E)



- Increase worker productivity
- Improved claims processing
- Increase revenue through sales engagements
- Extend existing applications to mobile workers and customers
- Reducing fuel, gas, or fleet maintenance costs that are relevant in particular industries
- Increase employee responsiveness and decision making speed
- Resolve internal IT issues faster
- Reduce personnel cost (utilizing personal owned instead of corporate issued devices)

Business to Consumer (B2C)



- Improve customer satisfaction
- Deeper customer engagement and loyalty
- Drive increased sales through Personalized offers
- Customer service
- Competitive differentiator
- Improve brand perception
- Deeper insight into customer buying behavior for up sell and cross sell
- Improve in store experience with mobile concierge services

But mobile also brings business and IT challenges

- Bring Your Own Device to Work (“BYOD”)
 - 200 Million employees do so today
- Cross-platform Development Considerations
 - Ability to create the user interface that you need
 - Avoiding the lowest-common-denominator pitfall
 - Learning curve of latest phone features
 - Avoiding vendor lock-in / technology that won’t keep up
- Using What the Device Has to Offer
- R&D Processes and Developer Teams
- Back-end Data Integration
- Security and Authentication
- Post-deployment control of apps



Top Mobile Adoption Concerns:

1. Security/privacy (53%)
2. Cost of developing for multiple mobile platforms (52%)
3. Integrating cloud services to mobile devices (51%)

Source: 2011 IBM Tech Trends Report
<https://www.ibm.com/developerworks/mydeveloperworks/blogs/techtrends/entry/home?lang=en>

Complete your sessions evaluation online at SHARE.org/AnaheimEval



Mobile Devices: Unique Management & Security Challenges

Mobile devices are shared more often

- Personal phones and tablets shared with family
- Enterprise tablet shared with co-workers
- Social norms of mobile apps vs. file systems



Mobile devices have multiple personas

- Work tool
- Entertainment device
- Personal organization
- Security profile per persona?



Mobile devices are diverse

- OS immaturity for enterprise mgmt
- BYOD dictates multiple OSs
- Vendor / carrier control dictates multiple OS versions



Mobile devices are used in more locations

- A single location could offer public, private, and cell connections
- Anywhere, anytime
- Increasing reliance on enterprise WiFi



Mobile devices prioritize the user

- Conflicts with user experience not tolerated
- OS architecture puts the user in control
- Difficult to enforce policy, app lists



Complete your sessions evaluation online at SHARE.org/AnaheimEval

IBM mobile strategy divided in the following:

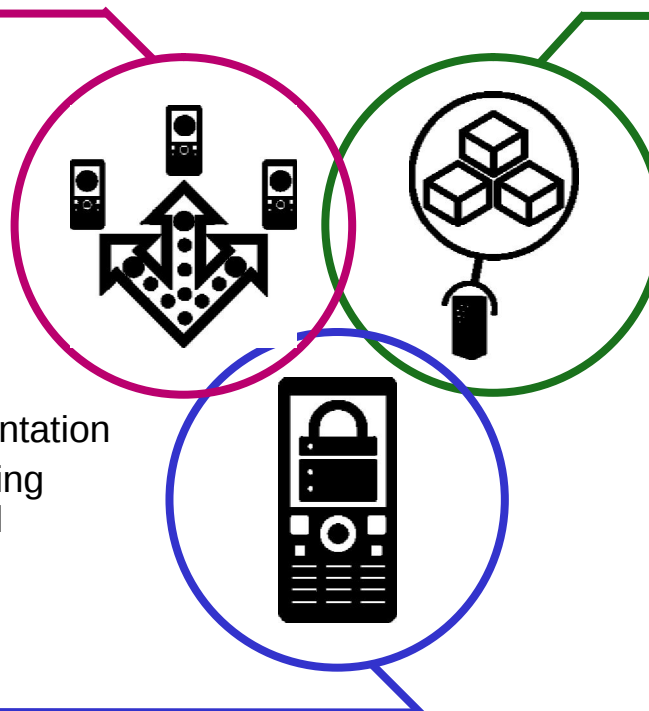
Extend & Transform

Extend existing business capabilities to mobile devices

Transform the business by creating new opportunities

Key Capabilities

- Strategy, planning and implementation
- Mobile-enabled solutions including analytics, commerce, and social business
- Mobile as a service



Build & Connect

Build mobile applications

Connect to, and **run** backend systems in support of mobile

Key Capabilities

- Multiplatform mobile web, hybrid and native app development
- Enterprise data, service, and application integration
- Life cycle management

Manage & Secure

Manage mobile devices, services and applications

Secure my mobile business

Key Capabilities

- Mobile Governance
- Device analytics and control
- Secure network communications & management

Delivering for multiple mobile platforms

IBM Worklight



IBM Worklight V5.0 supported on multiple environments, z highlights:

Middleware:

- WebSphere Application Server Network Deployment V7.0 or higher and future releases, modification levels and fix packs
- Apache Tomcat 7.0 and future fix packs

System z operating systems:

- Red Hat Enterprise Linux (RHEL) 5 Update 6 Advanced Platform System z
- Red Hat Enterprise Linux (RHEL) Server 6 System z
- SUSE Linux Enterprise Server (SLES) 11 System z
- SUSE Linux Enterprise Server (SLES) 10 System z

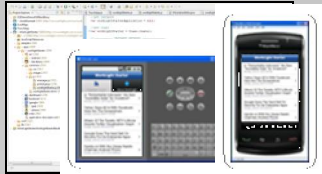


Key Capabilities

Mobile optimized middleware

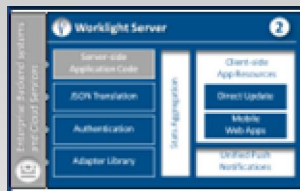
- Open approach to 3rd-party integration
- Strong authentication framework
- Encrypted offline availability
- Enterprise back-end connectivity
- Unified push notifications
- Data collection for analytics
- Direct updates and remote disablement
- Packaged runtime skins

Worklight mobile platform overview



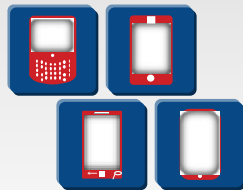
Worklight Studio

A complete, extensible environment with maximum code reuse and per-device optimization



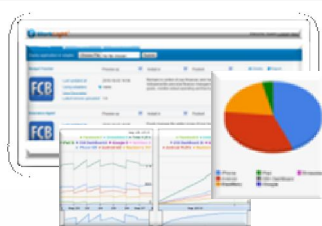
Worklight Server

Unified notifications, runtime skinning, version management, security features, integration and delivery



Worklight Runtime Components

Extensive libraries and client APIs that expose and interface with native device functionality and the Worklight server



Worklight Console

A web-based console for real-time analytics and control of your mobile apps and infrastructure

IBM mobile strategy divided in the following:

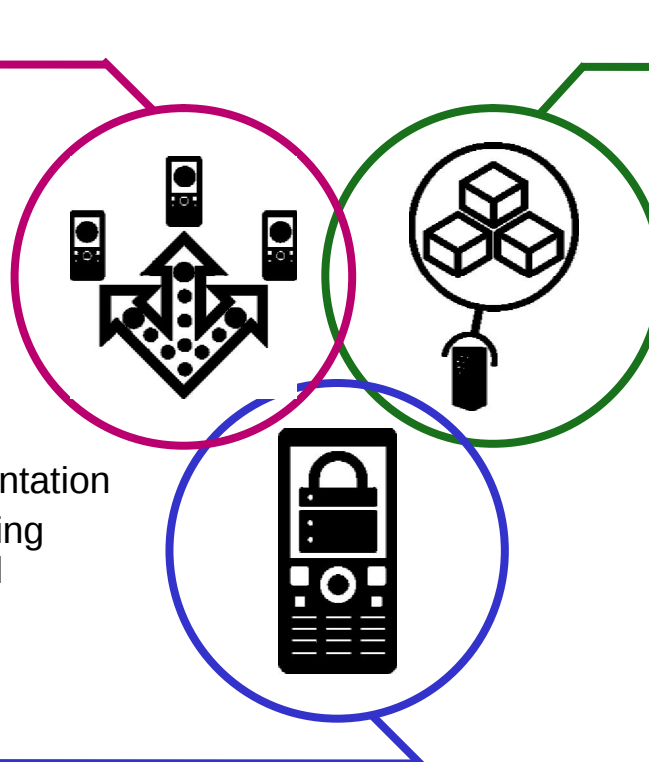
Extend & Transform

Extend existing business capabilities to mobile devices

Transform the business by creating new opportunities

Key Capabilities

- Strategy, planning and implementation
- Mobile-enabled solutions including analytics, commerce, and social business
- Mobile as a service



Build & Connect

Build mobile applications

Connect to, and **run** backend systems in support of mobile

Key Capabilities

- Multiplatform mobile web, hybrid and native app development
- Enterprise data, service, and application integration
- Life cycle management

Manage & Secure

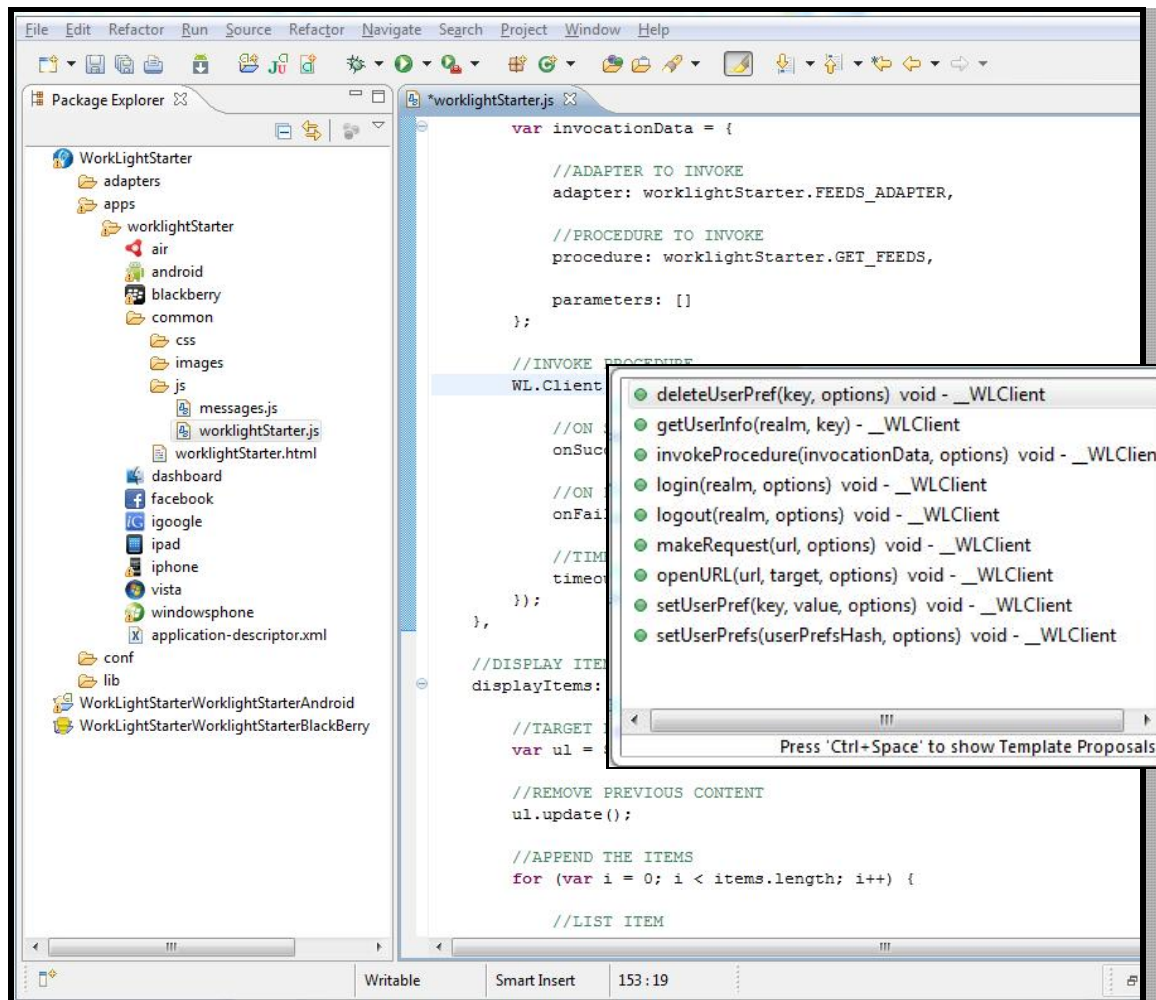
Manage mobile devices, services and applications

Secure my mobile business

Key Capabilities

- Mobile Governance
- Device analytics and control
- Secure network communications & management

IBM Worklight Studio



Integrated Development Environment (Eclipse Plug-in)

Application development using native and/or familiar web technologies:

- HTML5
- CSS3
- JavaScript

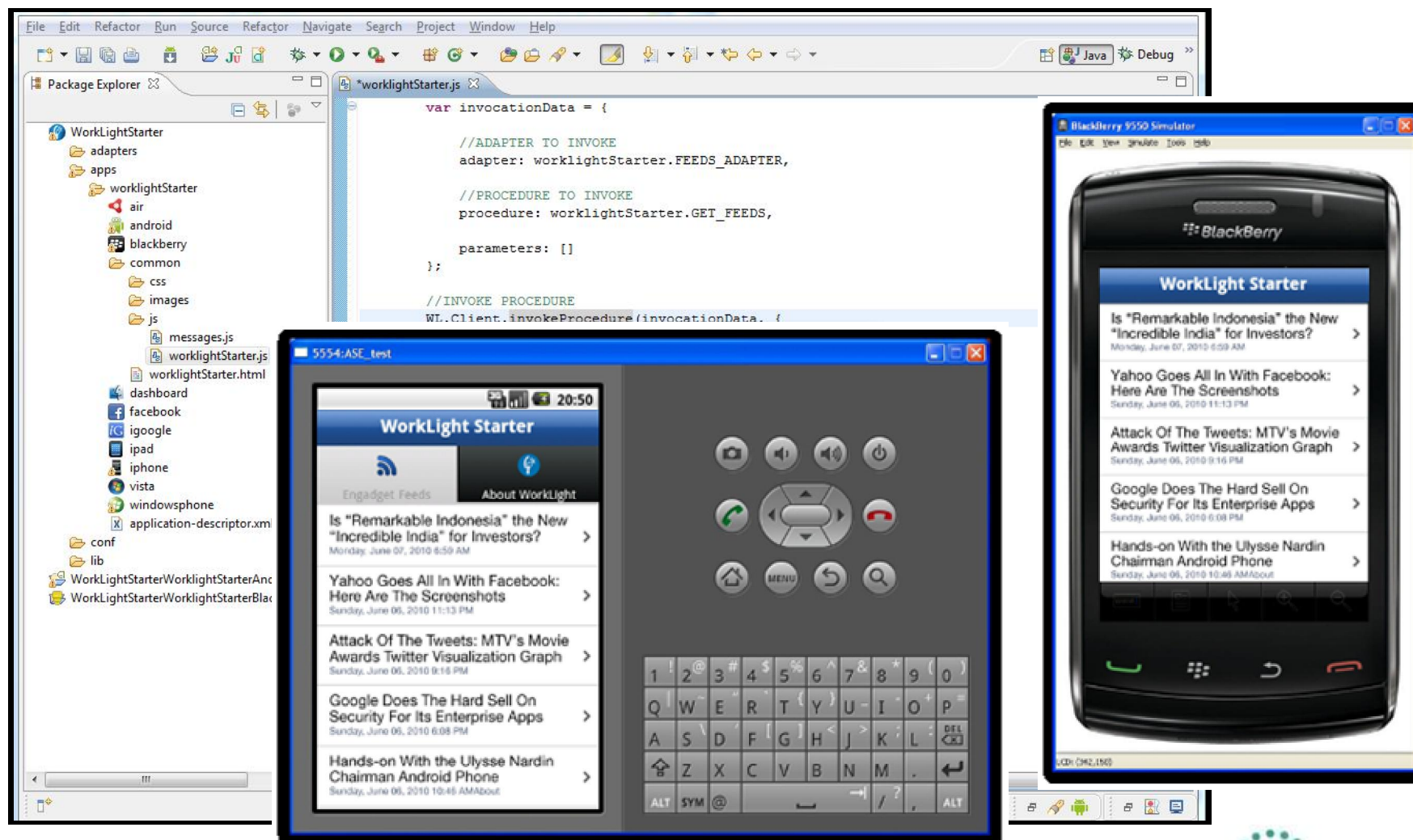


Integrated device SDKs allow direct access from within the IDE to emulators and code debugging utilities

Complete your sessions evaluation online at SHARE.org/AnaheimEval



Incorporated Device SDKs



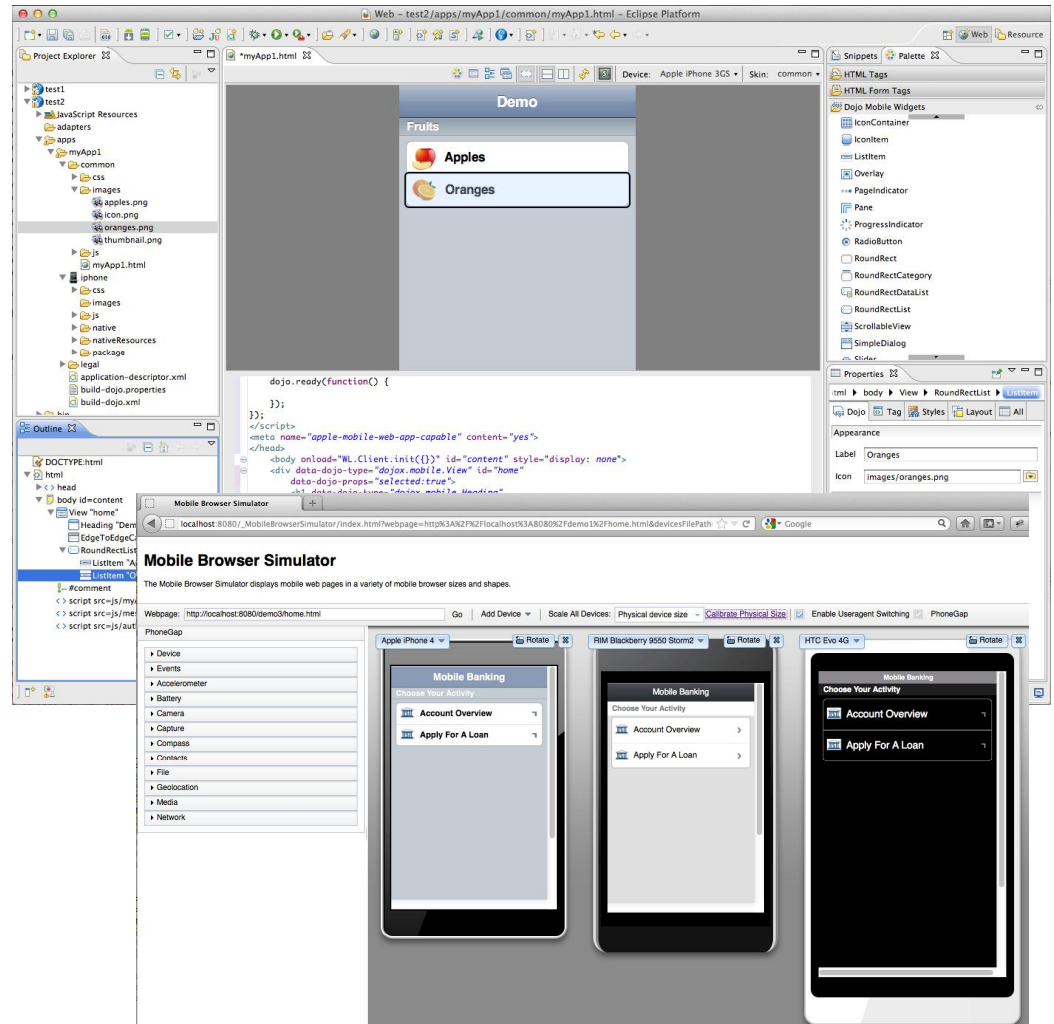
Worklight Studio V5.0

Rich page editor

- Worklight studio optimized for development of hybrid mobile applications, including a rich-page, drag-and-drop editor, palette of components, properties view, beautified outline, and raw editable source code for immediate UI customization.

Enhanced desktop preview

A new browser simulator allows the definition of the form factor of the target mobile device, concurrently displaying multiple devices on the screen, and simulating Cordova APIs.



Apache Cordova is a platform for building native mobile applications using HTML, CSS (Cascading Style Sheets), and JavaScript

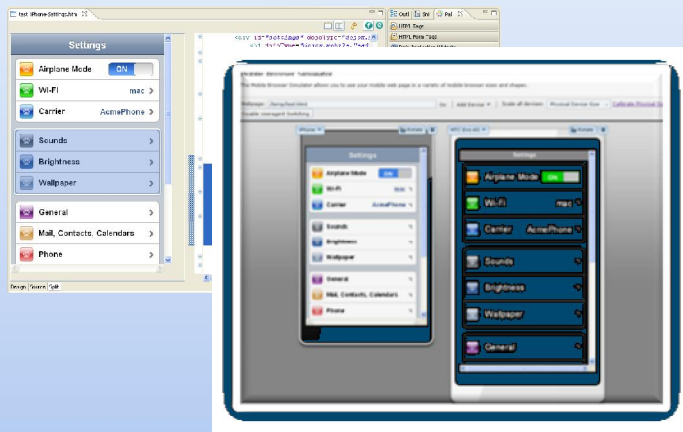
Complete your sessions evaluation online at SHARE.org/AnaheimEval

Rational IDEs with IBM Worklight



Design, code, build, test, and deploy mobile apps that run on a wide variety of mobile platforms; extend existing back-end services and data to mobile apps

Integrated multi-platform development environments



Construct, debug, and test mobile UIs



Reference architecture on enterprise platforms (System z, Power) as mobile-consumable services

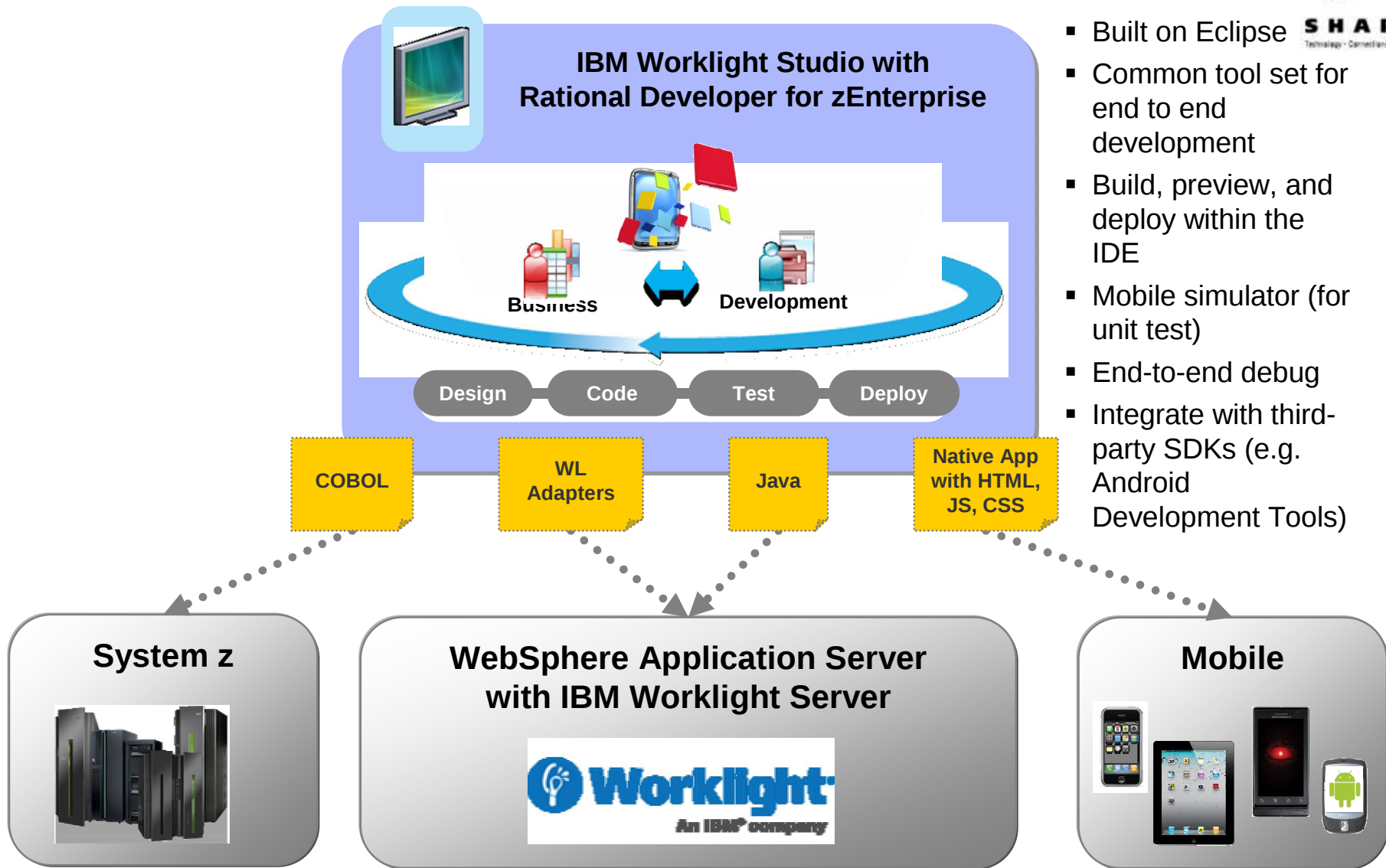
IBM Worklight 5.0 is now included in the following IDEs (for development purposes only):

- Rational Developer for **zEnterprise** v8.5
- Rational Developer for **Power Systems** v8.5
- Rational Application Developer v8.5
- Rational Software Architect v8.5

Complete your sessions evaluation online at SHARE.org/AnaheimEval



Mobile development with Rational Developer for z



- Built on Eclipse
- Common tool set for end to end development
- Build, preview, and deploy within the IDE
- Mobile simulator (for unit test)
- End-to-end debug
- Integrate with third-party SDKs (e.g. Android Development Tools)

Complete your sessions evaluation online at SHARE.org/AnaheimEval



IBM Worklight application types

Browser Access

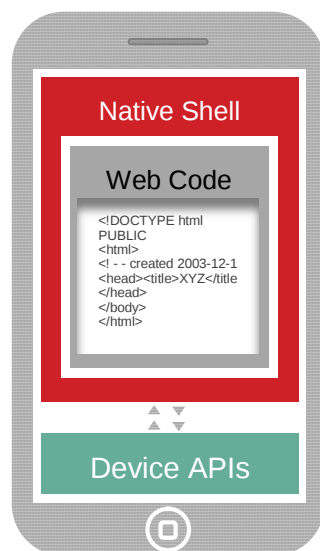
Written in HTML5 JavaScript and CSS3. Quick and cheap to develop, but less powerful than native.



Browser Access

Hybrid Apps - Web

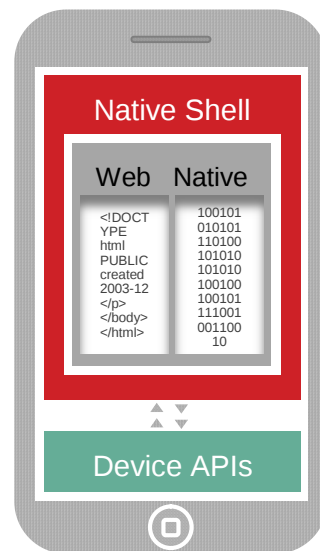
HTML5 code and IBM Worklight runtime libraries packaged within the app and executed in a native shell.



Downloadable

Hybrid Apps - Mixed

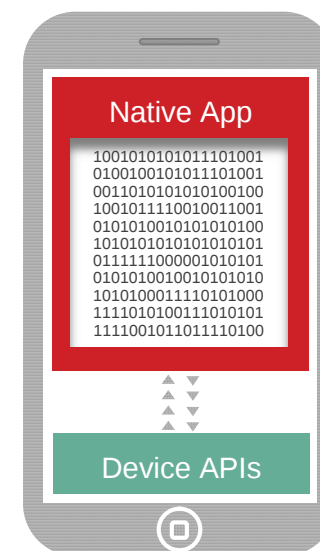
User augments web code with native language for unique needs and maximized user experience.



Downloadable

Native Apps

Platform-specific. Requires unique expertise, pricy and long to develop. Can deliver higher user experience.

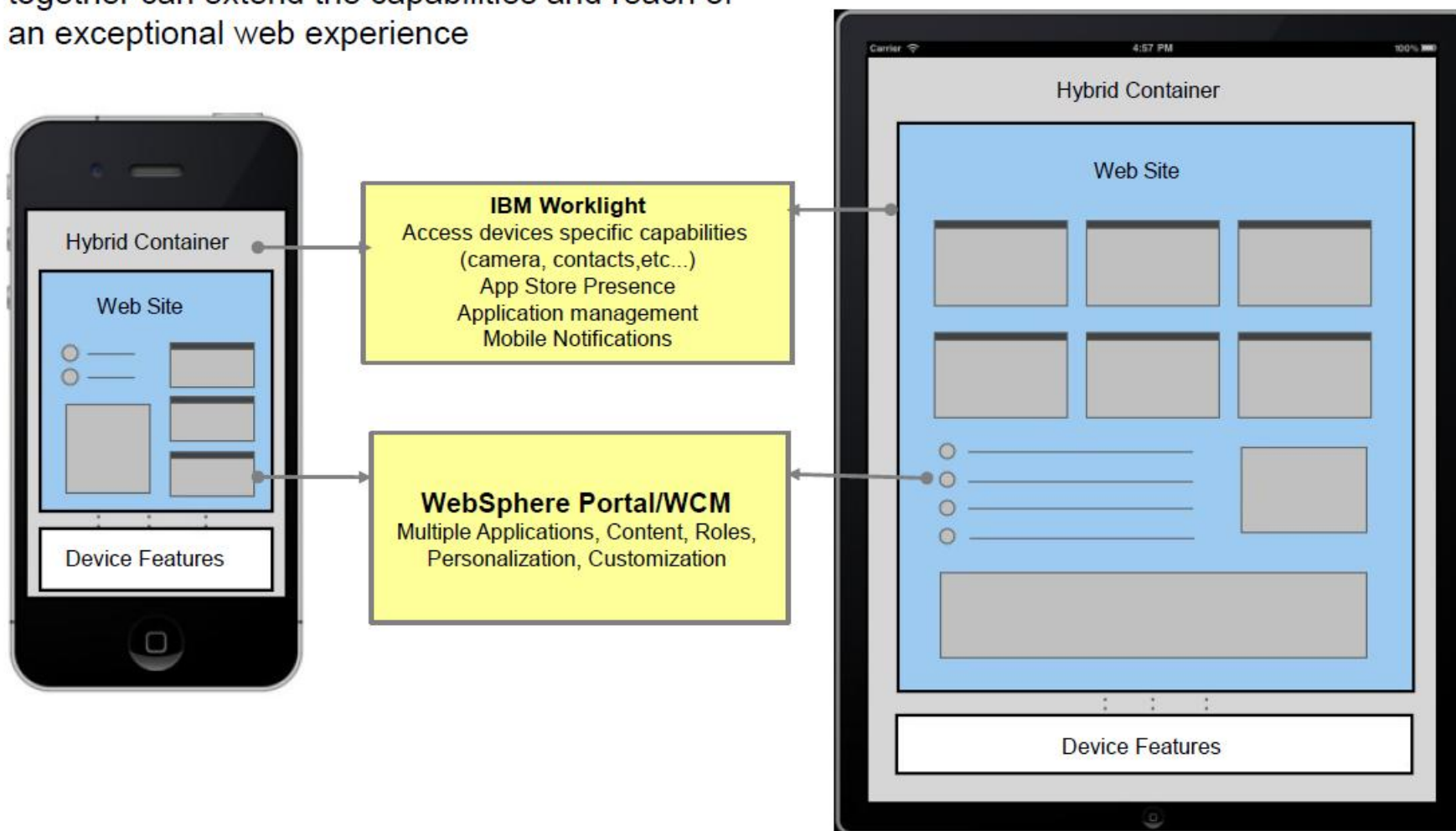


Downloadable

Hybrid – Worklight and WebSphere Portal



WebSphere Portal/WCM and IBM Worklight used together can extend the capabilities and reach of an exceptional web experience



WCM = Web Content Manager

Complete your sessions evaluation online at SHARE.org/AnaheimEval

IBM mobile strategy divided in the following:

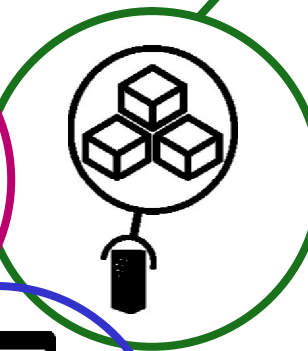
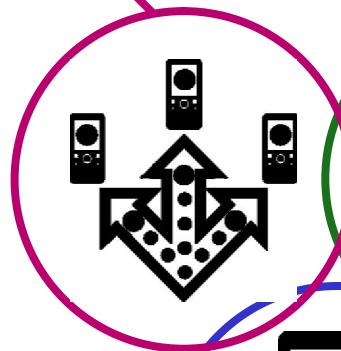
Extend & Transform

Extend existing business capabilities to mobile devices

Transform the business by creating new opportunities

Key Capabilities

- Strategy, planning and implementation
- Mobile-enabled solutions including analytics, commerce, and social business
- Mobile as a service



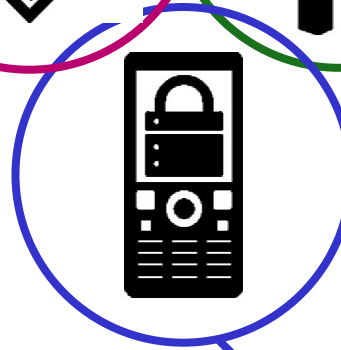
Build & Connect

Build mobile applications

Connect to, and **run** backend systems in support of mobile

Key Capabilities

- Multiplatform mobile web, hybrid and native app development
- Enterprise data, service, and application integration
- Life cycle management



Manage & Secure

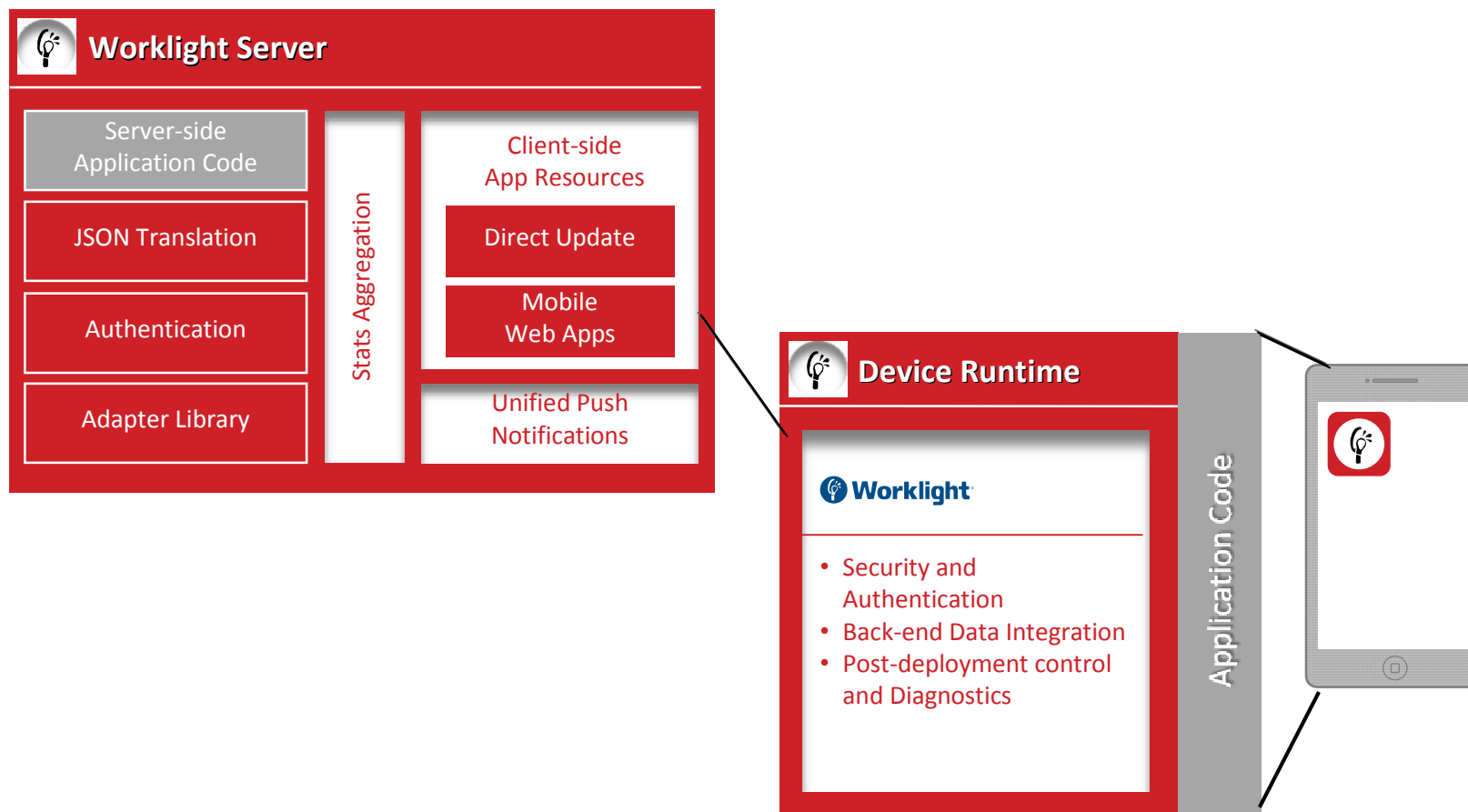
Manage mobile devices, services and applications

Secure my mobile business

Key Capabilities

- Mobile Governance
- Device analytics and control
- Secure network communications & management

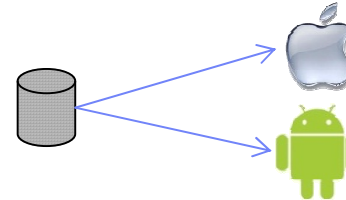
Worklight Runtime Architecture



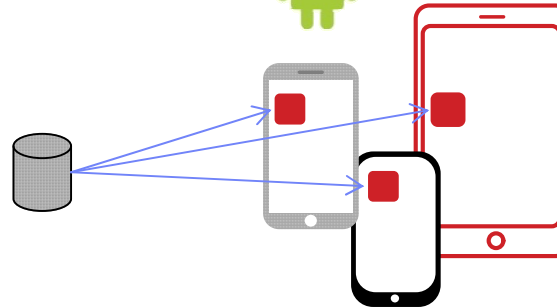
PhoneGap is an open source framework for building cross-platform mobile applications with HTML, CSS, and JavaScript. This is an ideal solution for web developers interested in mobile development as it allows them to leverage existing skills rather than start from scratch with a device-specific compiled language.

Flexible Push Notification Framework

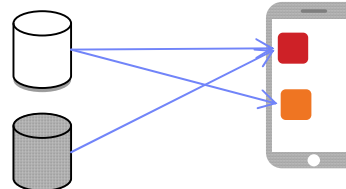
Common APIs for both iOS and Android



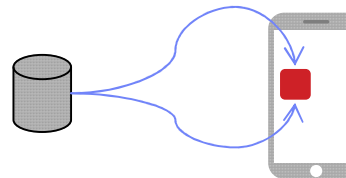
One application multiple devices
Custom subscription management



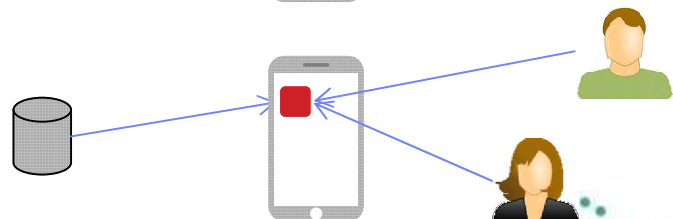
Many-to-many relationship between event sources and apps



Multiple event sources from same back-end



Multiple users logging into the same app



Application center

- The IBM Worklight Application Center was created to streamline testing processes of apps by enabling dev teams to share apps with testers, designers, sample users, product managers, and any other stakeholders.

- Testers can download the apps to their devices using a special mobile client application and provide feedback on directly from their devices. Developers can then gather this feedback and consider it in future dev cycles.



You are in: Applications

Application Management

Available Applications

Add Application

Display: 

1 - 5 of 9

Page 1 | 2

Previous | Next

Sort by: Label ^ | OS | Update Date

☒ Show inactive



App Center Installer

iOS (com.ibm.appcenter)

Installation: unrestricted | Administration: restricted

version 1 | 4/25/12 11:44 AM |     (1)



Dojo Showcase

iOS (com.ibm.mobile.DojoShowcase)

Installation: unrestricted | Administration: restricted

version 20120404 | 4/25/12 7:29 PM |     (0)



Dojo Showcase

Android (com.ibm.mobile.dojoshowcase)

Installation: unrestricted | Administration: restricted

version 20120404 | 4/26/12 1:11 PM |     (0)



PhoneGap Showcase

iOS (com.ibm.mobile.PhoneGapShowcase)

Installation: unrestricted | Administration: restricted

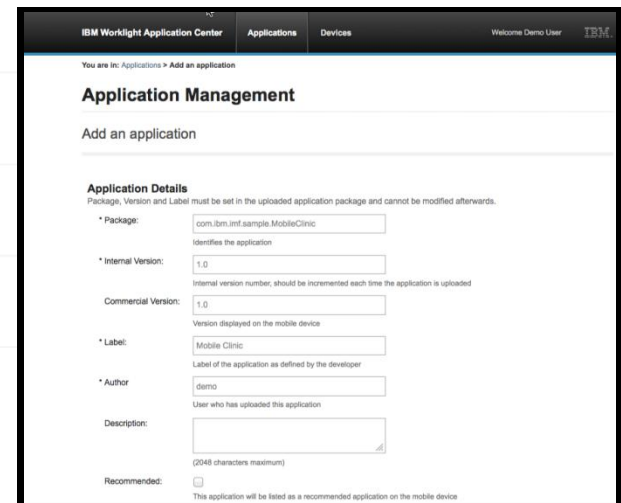
version 20120404 | 4/25/12 7:29 PM |     (1)



TestApp

Android (com.TestApp)

Installation: unrestricted | Administration: restricted



Application Management

Add an application

Application Details
Package, Version and Label must be set in the uploaded application package and cannot be modified afterwards.

* Package:
Identifies the application

* Internal Version:
Internal version number, should be incremented each time the application is uploaded

Commercial Version:
Version displayed on the mobile device

* Label:
Label of the application as defined by the developer

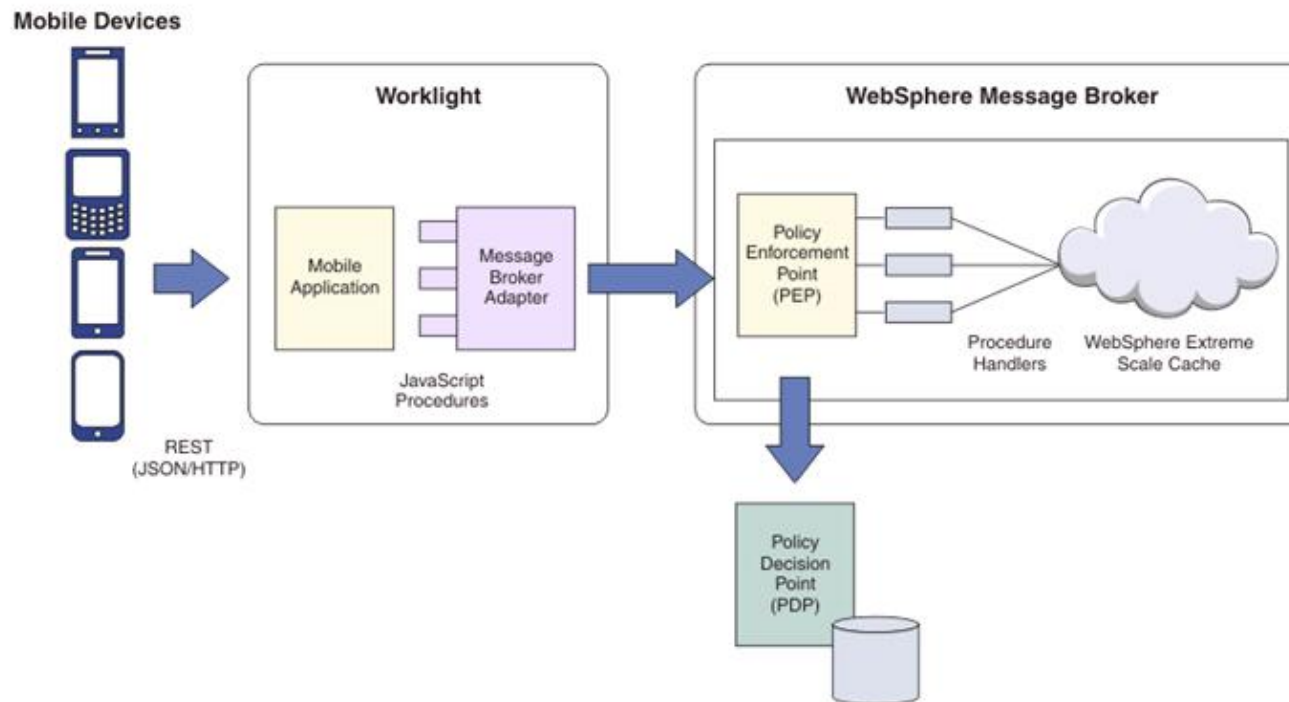
* Author:
User who has uploaded this application

Description:
(2048 characters maximum)

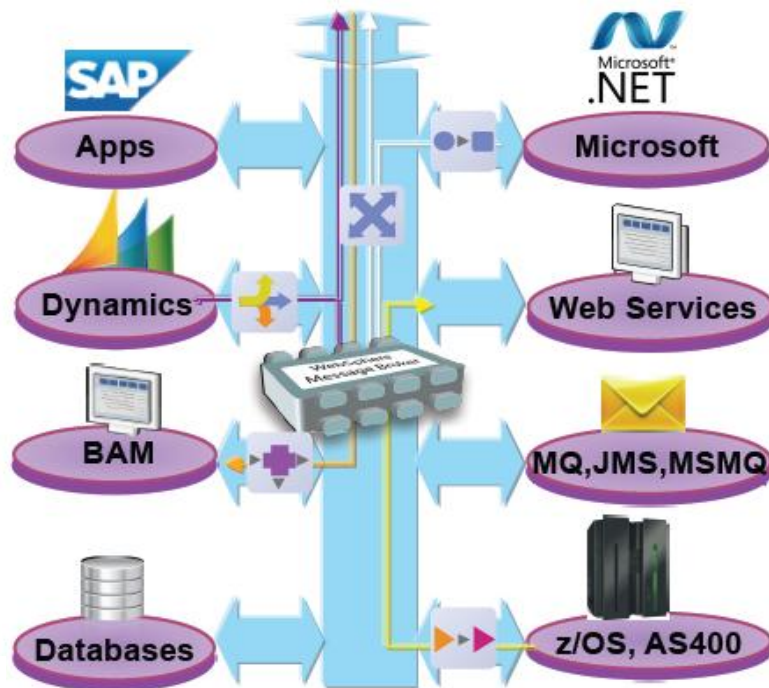
Recommended: ☐
This application will be listed as a recommended application on the mobile device

Worklight Adapters

- Adapters provide the glue between Worklight and back-end applications
 - Provides the extensibility mechanism for Worklight to call out to back-end systems
- Worklight has two built-in interfaces that adapters can use (HTTP and SQL)
 - Worklight has client-side JavaScript APIs so that applications can invoke services
 - Likewise, server-side JavaScript APIs are available to implement procedures (adapters)



Integrating Worklight and Message Broker to mobile enable your Enterprise



Simply Connect *FROM* anywhere *TO* anywhere

Simple & Easy –to Install, Learn, Develop, Deploy and Manage

Visually Map and Transform between any two message or file formats



► **Connect Everything to Everything**



► **MATCHES & ROUTES** communications between services



► **TRANSFORMS** between different data formats



► **CONVERTS** between different transport protocols



► **IDENTIFIES & DISTRIBUTES** business events

© 2012 IBM Corporation

Complete your sessions evaluation online at SHARE.org/AnaheimEval



Build, connect, manage and secure your mobile enterprise

IBM Mobile Foundation



IBM Mobile
Foundation



Includes

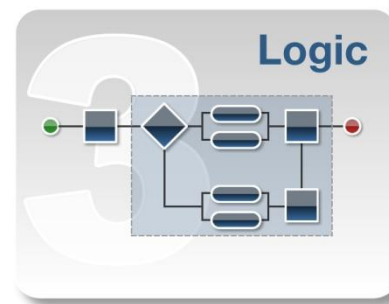
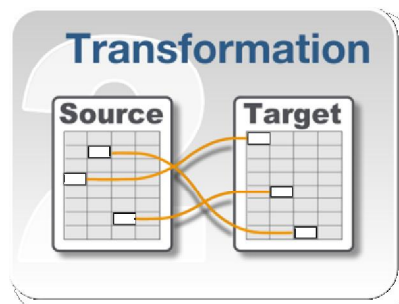
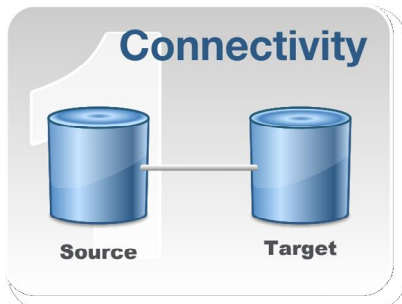
- IBM Worklight
- IBM WebSphere Cast Iron
- IBM Endpoint Manager for Mobile Devices

Complete your sessions evaluation online at SHARE.org/AnaheimEval

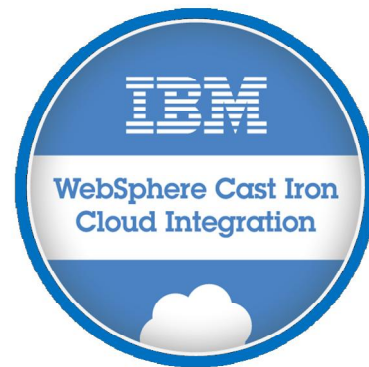
IBM Cast Iron: Simple Configuration to Packaged Apps and Cloud Services



Cast Iron Capabilities



Flexible: Maps to Your Cloud Strategy



Total Connectivity



Deployment Flexibility



Cloud Service



Physical Appliances



Virtual Appliances

Repeatable Success



TIP Exchange



TIP Development Kit

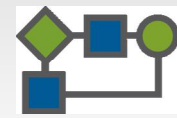


TIP Community

For All Types of Projects



UI Mashups



Process Integration

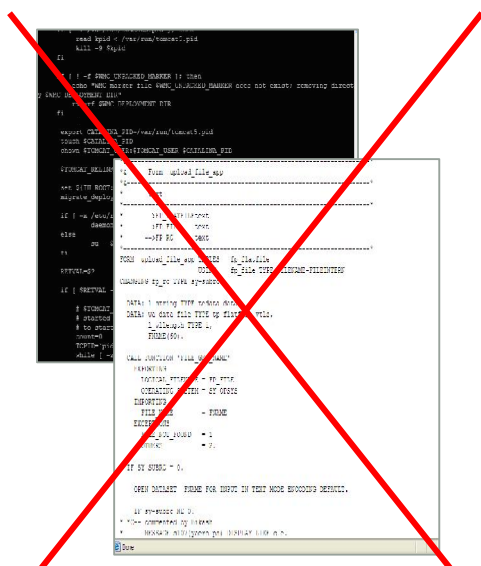


Data Migration

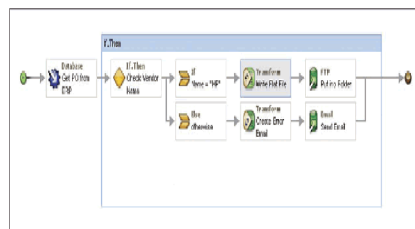
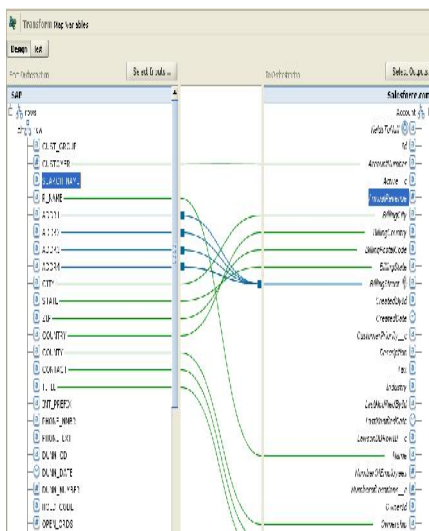
Complete your sessions evaluation online at SHARE.org/AnaheimEval

Simple: “Configuration, Not Coding” Approach

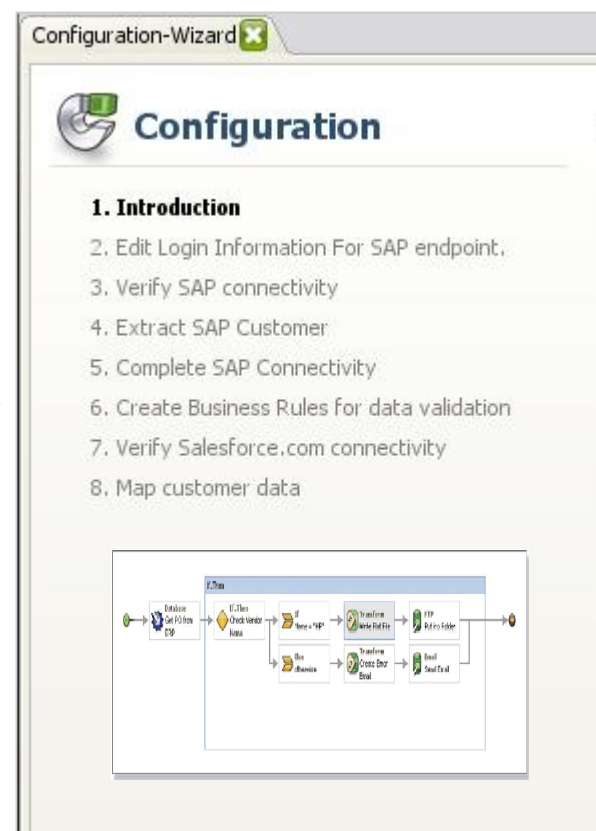
No Coding



Beyond Configuration



Preconfigured Templates (TIPs)

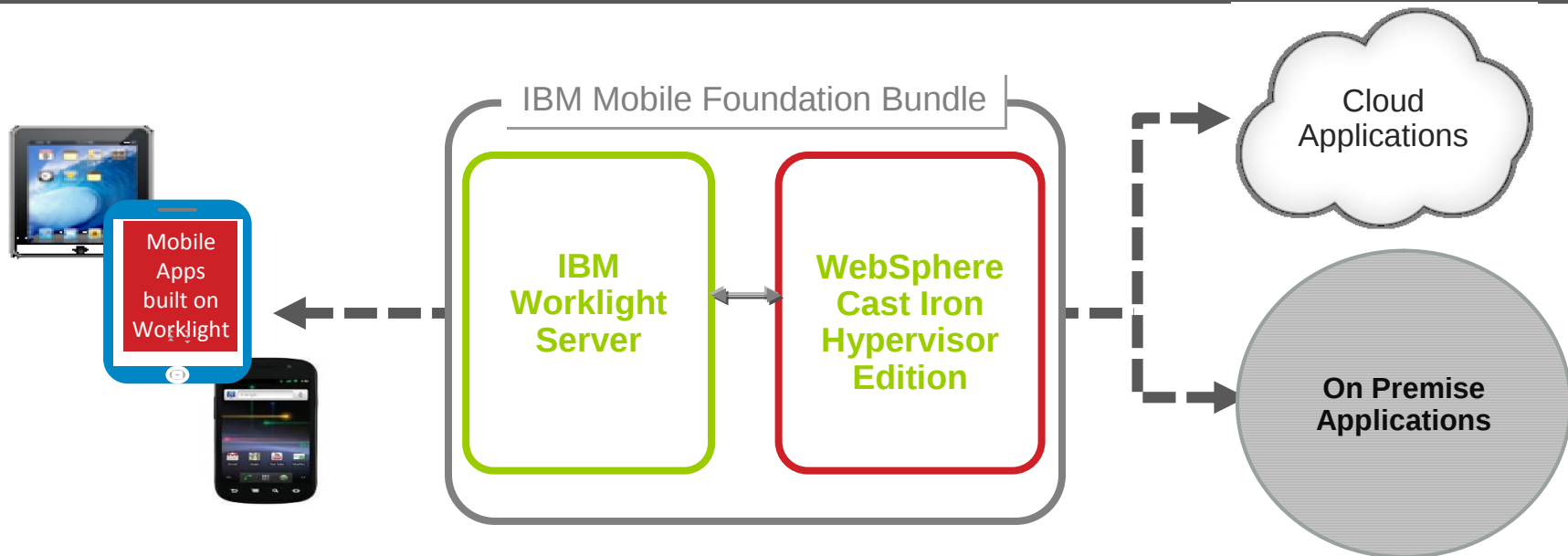


Complete your sessions evaluation online at SHARE.org/AnaheimEval

IBM Mobile Foundation – Worklight & Cast Iron Bundle



Connects Worklight Apps with Cloud & On Premise Applications in Days



	IBM Mobile Foundation – Enterprise Edition	IBM Mobile Foundation – Consumer Edition
Scenario	B2E (e.g. Enterprise building apps for their employees)	B2C (e.g. Enterprise building apps for their customers)
Bundle	Per Client Device: Worklight + End-point Mgr Per Install: Worklight Server + CI Hypervisor EE	Per App: Worklight + CI Hypervisor Edition EE

Complete your sessions evaluation online at SHARE.org/AnaheimEval



IBM mobile strategy divided in the following:

Extend & Transform

Extend existing business capabilities to mobile devices

Transform the business by creating new opportunities

Key Capabilities

- Strategy, planning and implementation
- Mobile-enabled solutions including analytics, commerce, and social business
- Mobile as a service

Build & Connect

Build mobile applications

Connect to, and **run** backend systems in support of mobile

Key Capabilities

- Multiplatform mobile web, hybrid and native app development
- Enterprise data, service, and application integration
- Life cycle management

Manage & Secure

Manage mobile devices, services and applications

Secure my mobile business

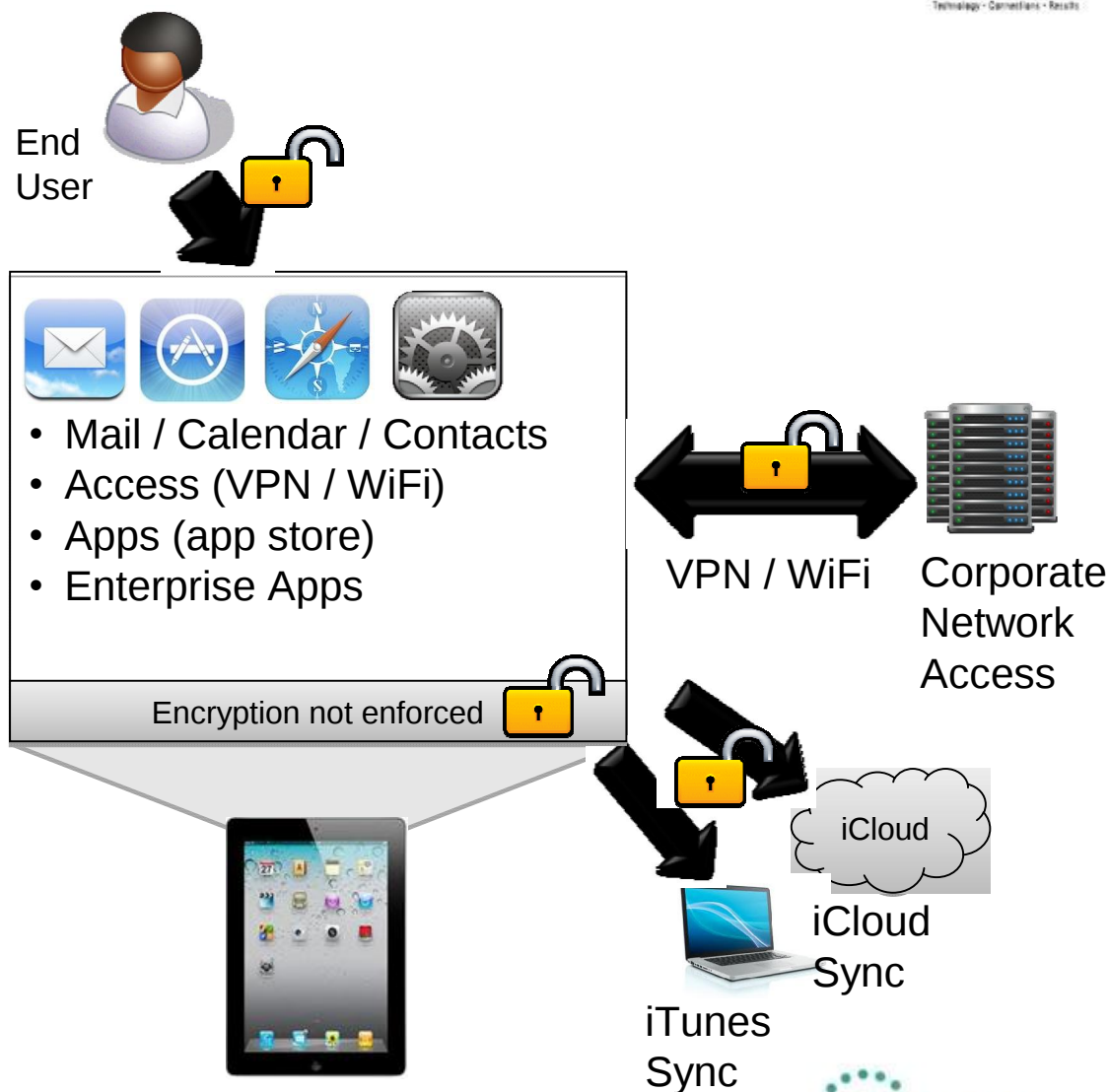
Key Capabilities

- Mobile Governance
- Device analytics and control
- Secure network communications & management

Managing Mobile Devices – The Problem

Security & Management Challenges

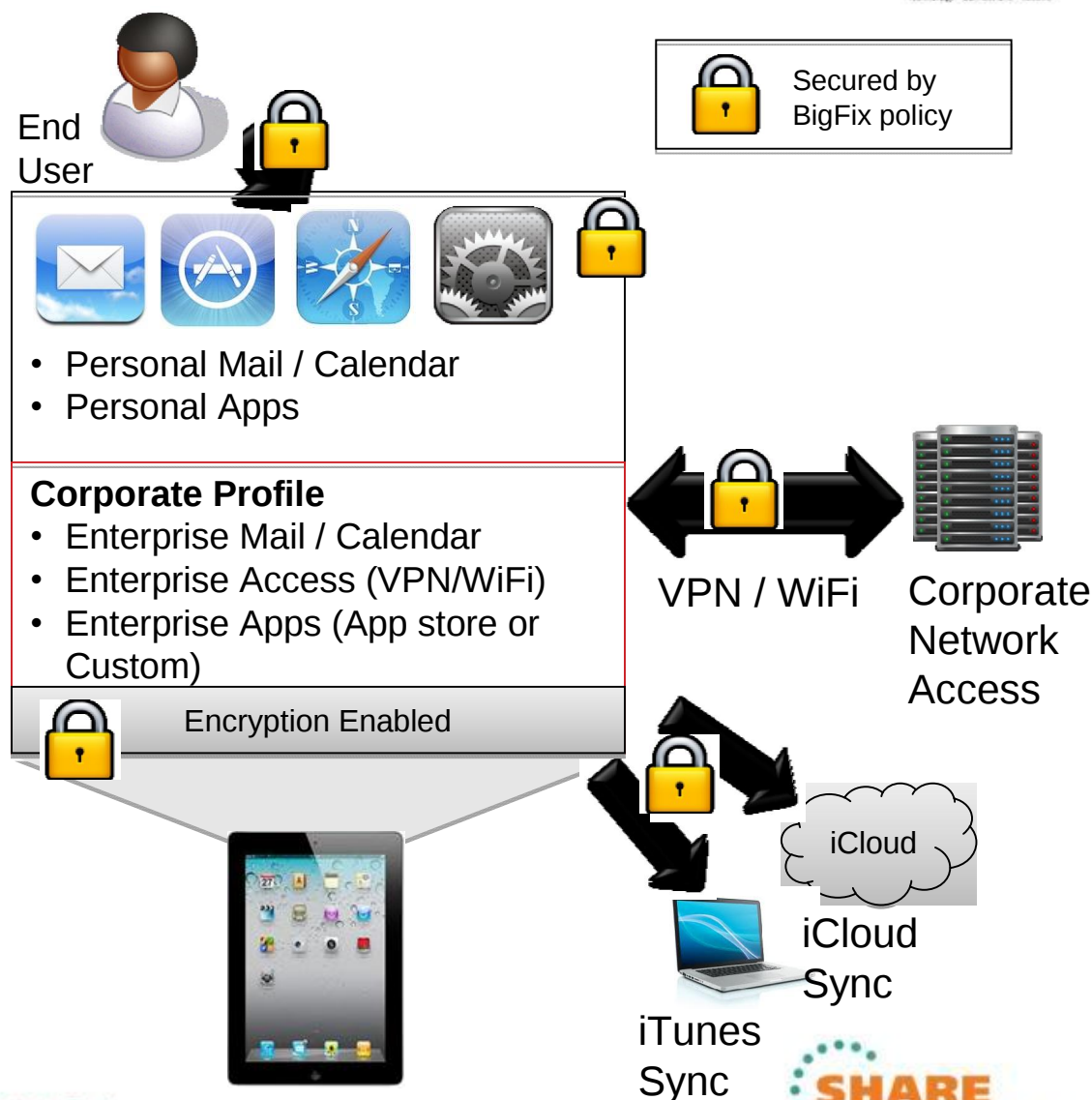
- Potential unauthorized access (lost, stolen)
- Disabled encryption
- Insecure devices connecting to network
- Corporate data leakage



Managing Mobile Devices – The Solution

Endpoint Manager for Mobile Devices

- Enable password policies
- Enable device encryption
- Force encrypted backup
- Disable iCloud sync
- Access to corporate email, apps, VPN, WiFi contingent on policy compliance!
- Selectively wipe corporate data if employee leaves company
- Fully wipe if lost or stolen



PCs and mobile devices have many of the same management needs

Traditional Endpoint Management

- OS provisioning
- Patching
- Power Mgmt



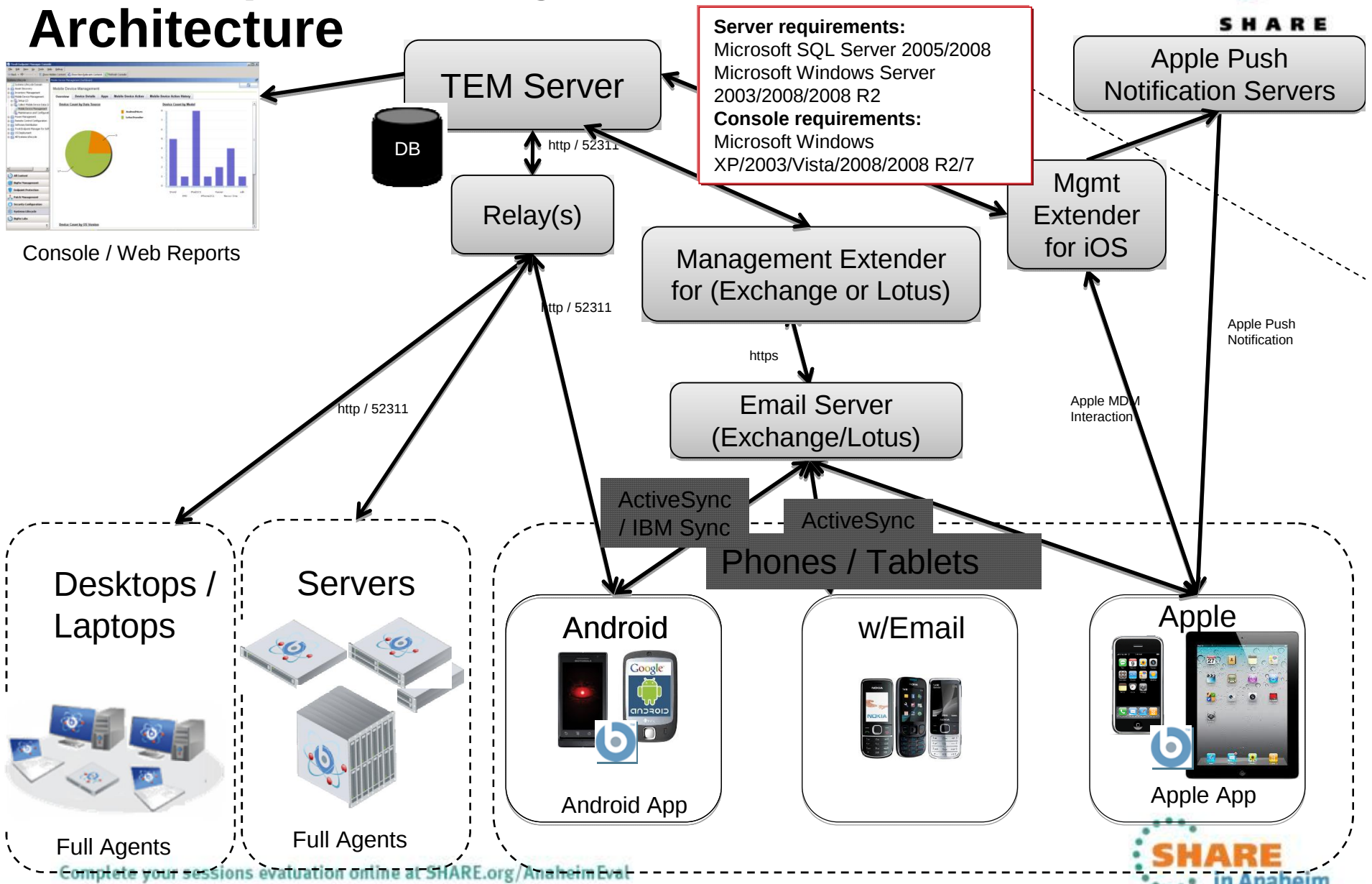
Mobile Device Management

- Device Wipe
- Location info
- Jailbreak/Root detection
- Enterprise App store
- Self-service portal



- Device inventory
- Security policy mgmt
- Application mgmt
- Device config (VPN/Email/Wifi)
- Encryption mgmt
- Roaming device support
- Integration with internal systems
- Scalable/Secure solution
- Easy-to-deploy
- Multiple OS support
- Consolidated infrastructure

IBM Endpoint Manager for Mobile Devices Architecture



How does Endpoint Manager manage mobile devices?



- Agent-based Management
 - Android via native BigFix agent
 - iOS via Apple's MDM APIs



- Email-based management through Exchange and Lotus Traveler
 - Supported platforms: iOS, Android, Windows Phone, Windows Mobile, Symbian



Exchange Server

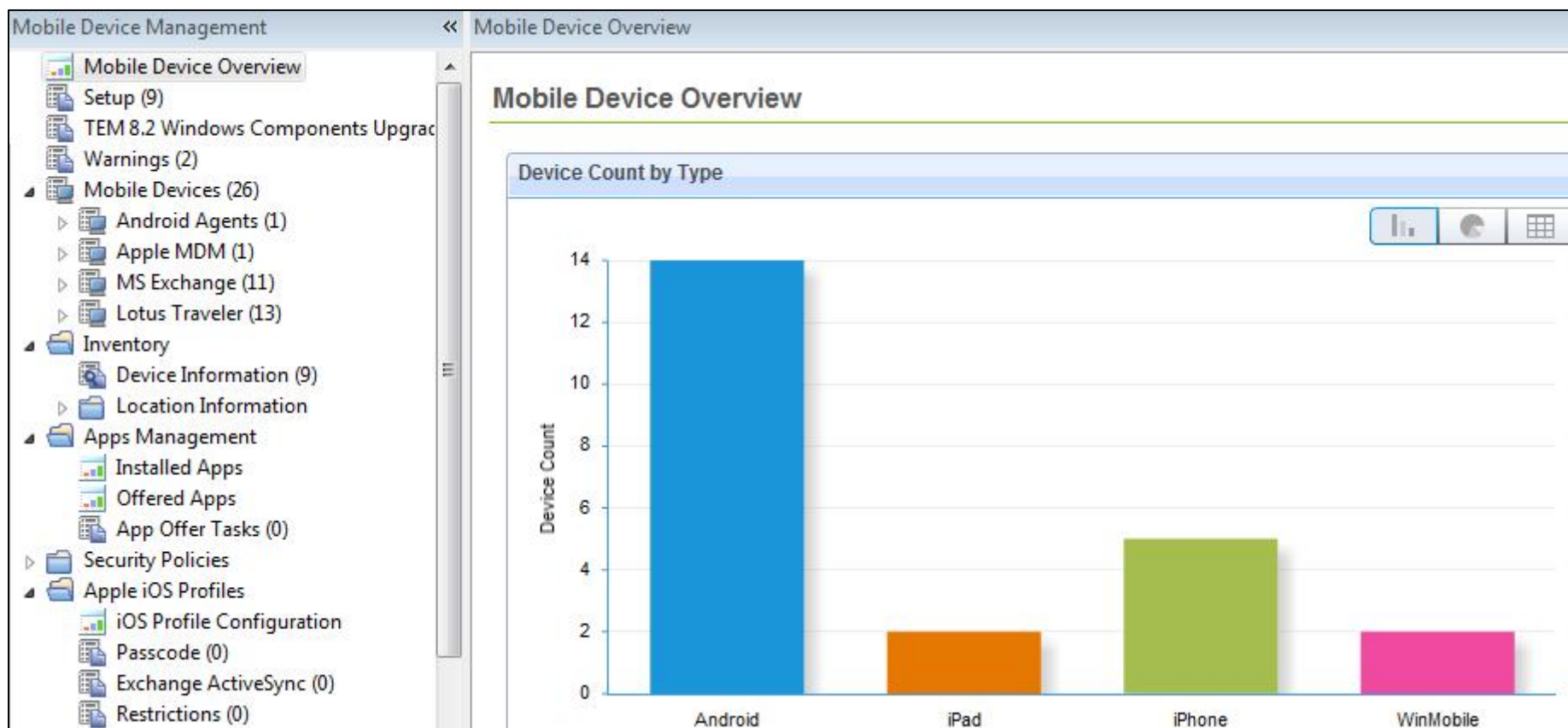


Category	Endpoint Manager Capabilities
Platform Support	Apple iOS, Google Android, Nokia Symbian, Windows Phone, Windows Mobile
Management Actions	Selective wipe, full wipe, deny email access, remote lock, user notification, clear passcode
End-User Services	Self-service portal, enterprise app store, authenticated enrollment (AD/LDAP)
Application Management	Application inventory, enterprise app store, whitelisting, blacklisting, Apple VPP
Policy & Security Management	Password policies, device encryption, jailbreak & root detection
Location Services	Track devices and locate on map
Enterprise Access Management	Configure email, VPN, and Wi-Fi; certificate management
Expense Management	Enable/disable voice and data roaming

Complete your sessions evaluation online at SHARE.org/AnaheimEval



Endpoint Manager for Mobile Devices Dashboard



A “Single Device View” enables administrators and helpdesk personnel to easily view device details and take required action



Device Name
0000000000000000

User Name
<none>

Operating System
Android (2.3.3)

Model
sdk

This device has been rooted

Last Report Time Dec 01, 2011 12:32:14 PM

Manufacturer unknown

Carrier generic

LastSyncTime n/a

Phone Number n/a

Agent Version 8.2.867.0

Data Source Native

Device Details Management Commands Security Info Installed Apps

Name

[Device Wipe](#) [Apply](#)

[Clear Passcode](#) [Apply](#)

Device Name
[nmakhani's iPad](#)

User Name
nmakhani@us.ibm.com

Operating System
iOS 5.1.0

Model
iPad

Location
Location not Supported

Last Report Time 6/25/2012 3:25:34 PM

Manufacturer Apple

Carrier n/a

Phone Number n/a

Agent Version 8.2.11037.0

Data Source Apple MDM

Device Details Management Commands iOS Profiles Security Info

Device Details - Android / Apple iOS

GUID / IMEI n/a

Serial Number V5044H82

Name BigFix iPad

Manufacturer Apple

Last Server Communication Mon, 25 Jun 2012 15:25:34 -0700

Authenticated User ID n/a

Model iPad

Device Ownership Organization

Phone Number n/a

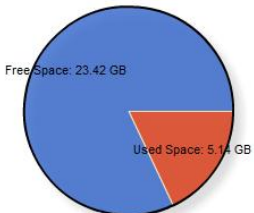
UUID / UDID 976e7dde31b9815f4f1d1a0acd8bbebc7

Carrier n/a

Model ID MB293LL

Locale/User Language en

Storage Information

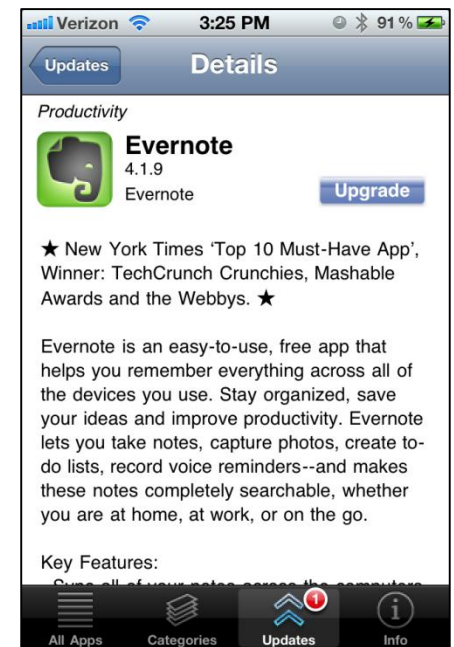
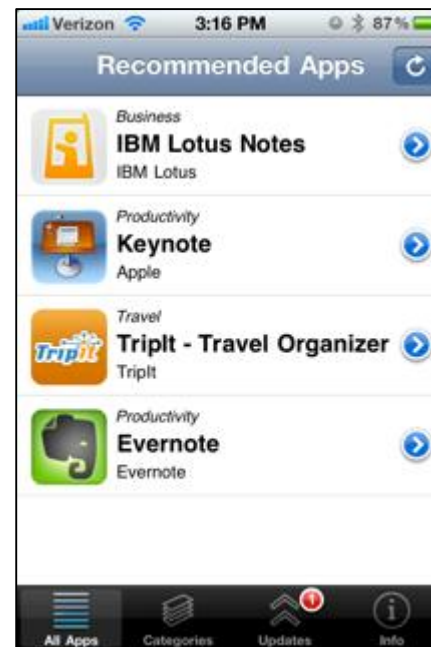
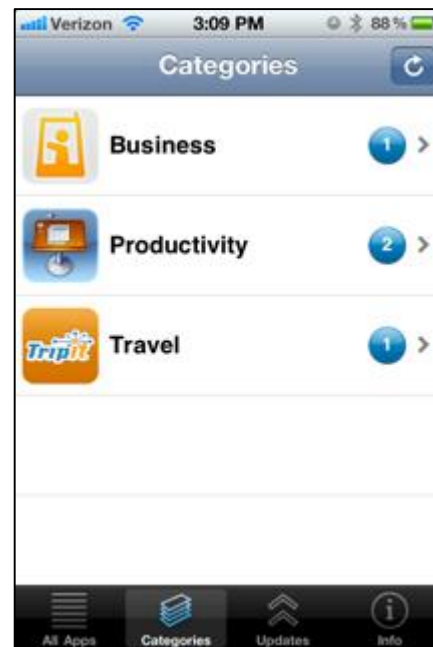
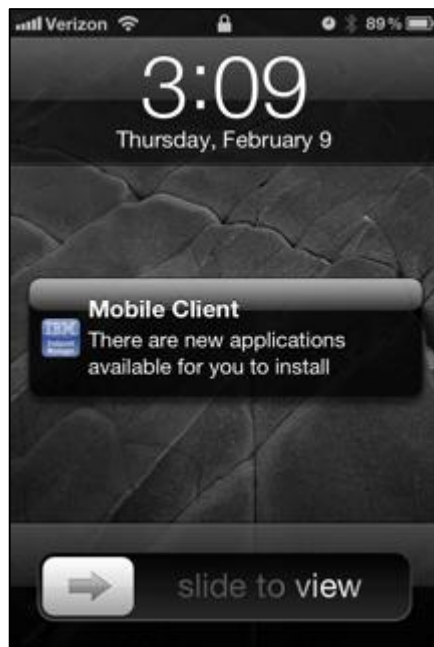


Free Space: 23.42 GB

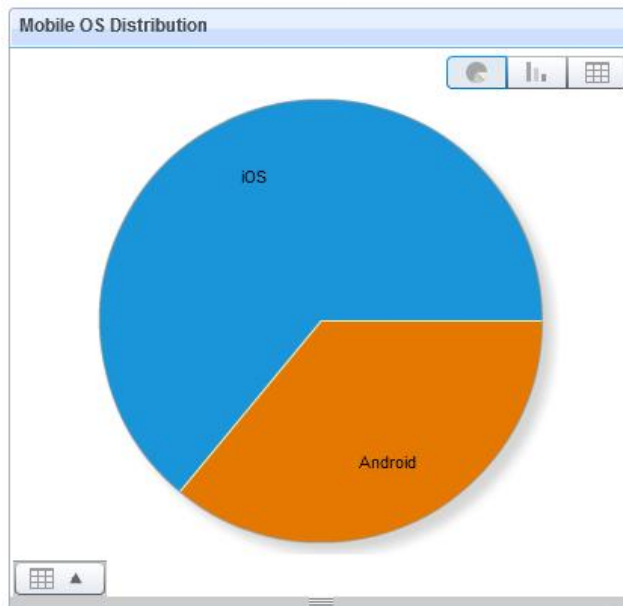
Used Space: 5.14 GB

Total Storage Space: 28.56 GB

Distribute apps using the Enterprise App Store

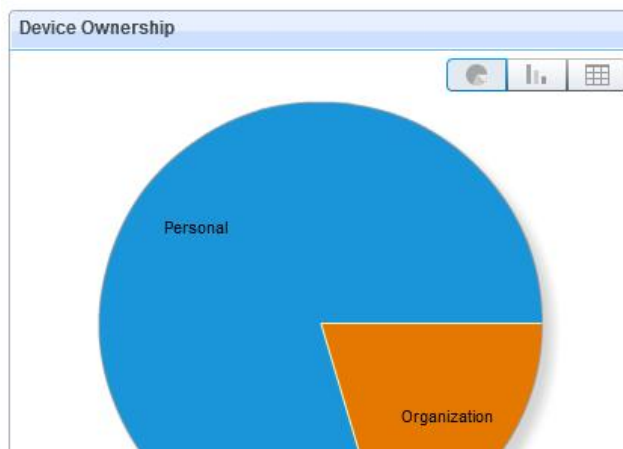


Web reports provide at-a-glance mobile device deployment overviews



Android Detail

Version	Device Count	Manufacturer	Device Count
2.3.4	7	Samsung	6
2.3.3	4	HTC	5
4.0.2	3	Motorola	3
4.0.3	1	Unknown	3
3.2.1	1	Amazon	1
2.3.5	1		
2.2	1		



iOS Detail

Version	Device Count	Device Type	Device Count
5.1.0	10	iPhone 4	9
5.0.1	8	iPhone 4S	7
5.1.1	5	iPad	4
4.2.1	3	iPad 2 (WiFi)	3
4.3.5	2	iPhone 3GS	2
5.1	2	iPad 2 (GSM)	1
6.0.0	1	iPhone 4 (CDMA)	1
5.0.0	1	iPad (3rd Gen)	1

Complete your session evaluation online at SHARE.org/AnaheimEval



A Self-Service Portal empowers employees to locate lost devices and perform tasks such as lock, clear passcode, and device wipe



IBM Mobile Device Service Portal bkus@us.ibm.com Logout			
Device Name	User Name	Operating System	Data Source
bkus's iPhone	bkus@us.ibm.com	iOS 5.1.1	Apple MDM
bkus's ADR6400L	bkus@us.ibm.com	Android 2.3.4	Native
bkus's iPad	bkus@us.ibm.com	iOS 6.0.0	Apple MDM

Actions

Device Details

iOS Profiles

Apps

Security

Device Commands

Lock Screen

Clear Passcode

Device Wipe

[Show Command History](#)

[Show Command History](#)

[Show Command History](#)

A unified report of password policies across all mobile OS' makes it easy for administrators to identify non-compliant devices



Analysis: Password Settings

Activate Deactivate Edit Export Hide Locally Hide Globally Remove

Description Details Results Applicable Computers (27) View as list

Computer Name	OS	Password Enabled	Password Compliant	Password Length (min)	Require Alphanumeric	Inactivity Timeout (min)
358920045232227	Android (2.3.3)	False	True	0	False	0
0000000000000000	Android (2.3.3)	False	True	0	<undefined>	<u>
FB61B6D5A0F74...	Android (2.3.4)	False	True	0	False	0
99000033060984	Android (2.3.4)	False	True	0	<undefined>	<u>
99000052220657	Android (3.2.1)	False	True	0	<undefined>	<u>
jnskala@us.ibm...	Android (4.0.1)	False	True	0	<undefined>	<u>
Guille's iFoca	Apple iOS 4.3.5	True	True	8	True	30
Jim's iPad	Apple iOS 5.0.1	False	True	n/a	False	n/a
Ben's iPhone4	Apple iOS 5.0.1	True	True	8	True	5
Kelly Gibson's iP...	Apple iOS 5.0.1	True	True	4	False	5
Ben's iPad	Apple iOS 5.0.1	True	True	8	True	15
Appl33049UUXA90	iOS 4.3.3	False	False	n/a	False	n/a
Appl33049UUXA90	iOS 4.3.5	False	False	n/a	False	n/a
Appl7R049JM0A45	iOS 4.3.5	False	False	n/a	False	n/a
ApplV5051FERA90	iOS 4.3.5	False	False	n/a	False	n/a
ApplV5051FERA90	iOS 4.3.5	False	False	n/a	False	n/a
Appl7W05224EA45	iOS 4.3.5	False	False	n/a	False	n/a
Appl7R049JM0A45	iOS 4.3.5	False	False	n/a	False	n/a
Appl7W05224EA45	iOS 4.3.5	False	False	n/a	False	n/a

View installed apps on Android and iOS devices

This dashboard lists the applications that are installed on managed devices.

Android Apps Apple iOS Apps

Apps List

Tag checked as:

☐	Display Name	Tag	1 ▲ Package Name	Description	Version	Computer Count
☐	Dropbox	Blacklisted	com.getdropbox.Dropbox		1.4.2, 1.4.7, 1.5.1	<u>4</u>
☐	XFINITY TV	Blacklisted	com.comcast.cim.xfinityt		1.8.1	<u>1</u>
☐	ApptDialer	Enterprise	com.foxgroupco.apptdia		3.2	<u>1</u>
☐	Triplt - Travel Organizer	Enterprise	com.tripit.tripitmobile		2.5, 3.3.1	<u>2</u>
☐	Mobile Client	Enterprise	com.ibm.tivoli.mobileclien		1.0.2, 8.2.11058, 8.2.110	<u>4</u>
☐	Alfred		com.alfredmobile.alfred		0.6.8.5305	<u>1</u>
☐	Trippy		com.trippy.delightful		1.0.44	<u>1</u>
☐	IMDb		com.imdb.imdb		2.2, 2.6.1	<u>3</u>
☐	Shazam		com.shazam.Shazam		345	<u>1</u>
☐	Kindle		com.amazon.Lassen		n/a	<u>4</u>
☐	Talkatone		im.talkme.talkmeim		1.4.1	<u>1</u>
☐	Calculator Pro		com.apalon.calculatorpro		1.3	<u>1</u>
☐	Flashlight		com.johnhaney.Flashligh		4.1	<u>1</u>
☐	iBooks		com.apple.iBooks		335	<u>1</u>

IBM mobile strategy divided in the following:

Extend & Transform

Extend existing business capabilities to mobile devices

Transform the business by creating new opportunities

Key Capabilities

- Strategy, planning and implementation
- Mobile-enabled solutions including analytics, commerce, and social business
- Mobile as a service

Build & Connect

Build mobile applications

Connect to, and **run** backend systems in support of mobile

Key Capabilities

- Multiplatform mobile web, hybrid and native app development
- Enterprise data, service, and application integration
- Life cycle management

Manage & Secure

Manage mobile devices, services and applications

Secure my mobile business

Key Capabilities

- Mobile Governance
- Device analytics and control
- Secure network communications & management

Session Objectives



- Name two capabilities of IBM Worklight 5.0 and one of the pre-req runtime environments
 - Standards based development of mobile applications
 - Client authentication
 - Worklight Server support on WebSphere V7 and above, Apache Tomcat V7.0 and above on Linux for System z
- Name the three products that make up IBM Mobile Foundation 5.0 and their high level functions
 - IBM Worklight
 - IBM WebSphere Cast Iron
 - IBM Endpoint Manager for Mobile Devices
- Explain: BYOD, B2C, B2E, Native, Hybrid, Shell, Push Notification
 - Bring Your Own Device
 - Business to Consumer/Customer
 - Business to Enterprise/Employee
 - Native apps can exploit device features
 - Hybrid apps make the best of device and web
 - Shell is an execution environment on the device
 - Push Notification – sending of an event notification to a device

Complete your sessions evaluation online at SHARE.org/AnaheimEval



Additional Info

- To learn more about IBM's mobile enterprise, go to: <http://www-01.ibm.com/software/solutions/mobile-enterprise/>
- To learn more about IBM Mobile Foundation go to: www.ibm.com/software/mobile-solutions
- WebSphere User Group webcast: <http://www.websphereusergroup.org/gwcgroupsowner/go/gallery/item/1499885?type=video>
- To try IBM Worklight mobile platform, register for the trial download at: www.ibm.com/worklight-trial
- Watch this informative webinar: [Harnessing the Power of Mobile in the Enterprise](#)

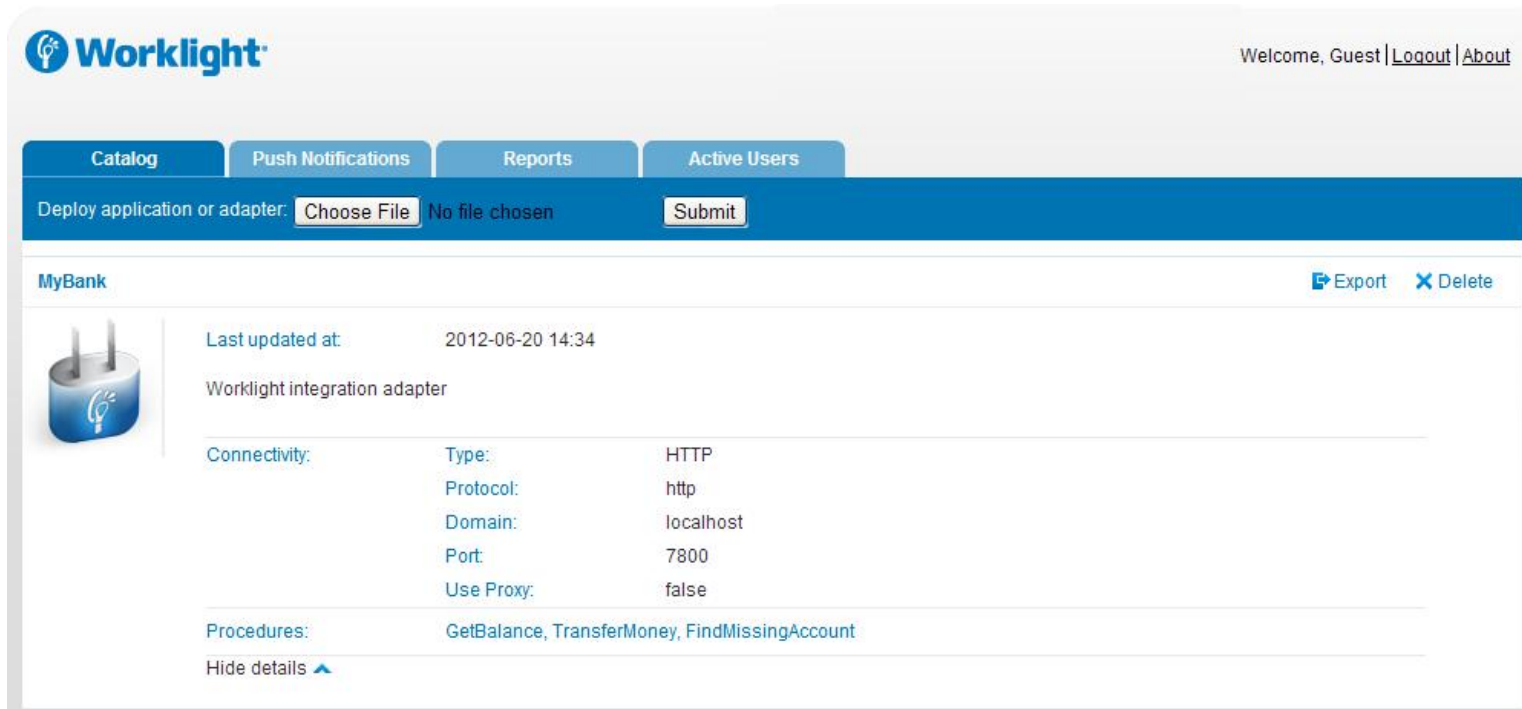


Thank
You

Backup

Worklight Adapters

- An adapter contains two files for configuration and implementation
 - The first file is XML and contains the overall metadata (procedure names, protocol etc)
 - Second file is JavaScript and contains one function (procedure) for each entry point
- Adapters are uploaded to Worklight Server ready for mobile applications
 - Once deployed, adapters are managed through the Worklight Console



The screenshot shows the Worklight Console interface. At the top, there's a navigation bar with tabs for 'Catalog', 'Push Notifications', 'Reports', and 'Active Users'. Below this is a deployment bar with a 'Choose File' button and a 'Submit' button. The main content area displays the configuration for the 'MyBank' adapter. It includes a 'Last updated at' timestamp of '2012-06-20 14:34' and a description 'Worklight integration adapter'. A table lists the connectivity details: Type (HTTP), Protocol (http), Domain (localhost), Port (7800), and Use Proxy (false). Below the table, the procedures are listed as 'GetBalance, TransferMoney, FindMissingAccount'. There are also 'Export' and 'Delete' buttons for the adapter.

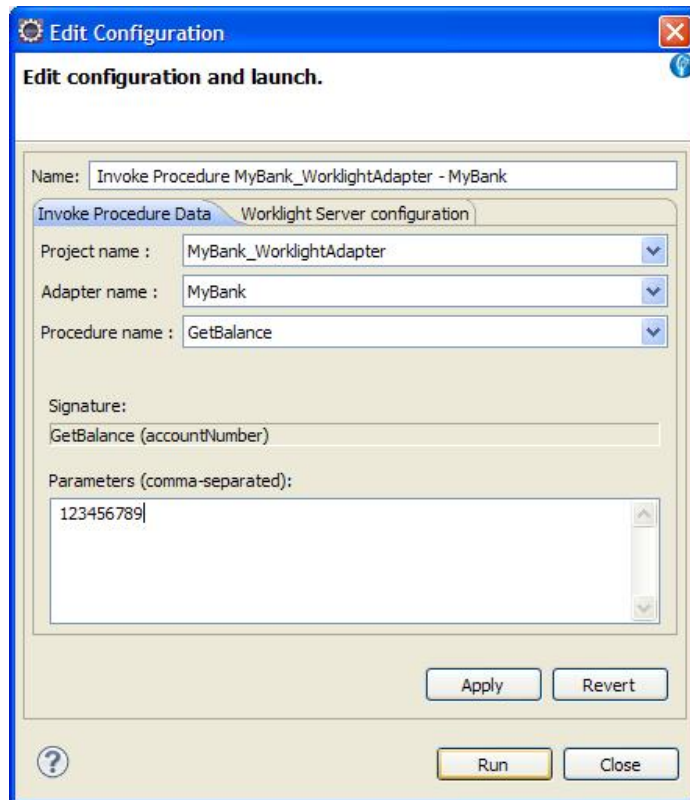
Connectivity:	Type:	HTTP
	Protocol:	http
	Domain:	localhost
	Port:	7800
	Use Proxy:	false

Procedures: GetBalance, TransferMoney, FindMissingAccount

Hide details ▲

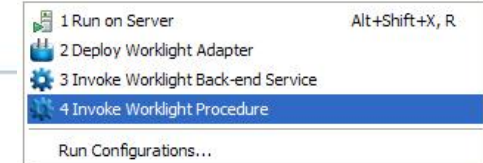
Invoking Worklight adapters

- Adapters are invoked from mobile applications using HTTP/JSON
 - This convention makes Worklight adapters easy to test using web browsers
 - Client side applications use the XMLHttpRequest object for asynchronous calls
 - Mobile toolkits (jQuery, Dojo and Sencha) wrap this in a device independent layer



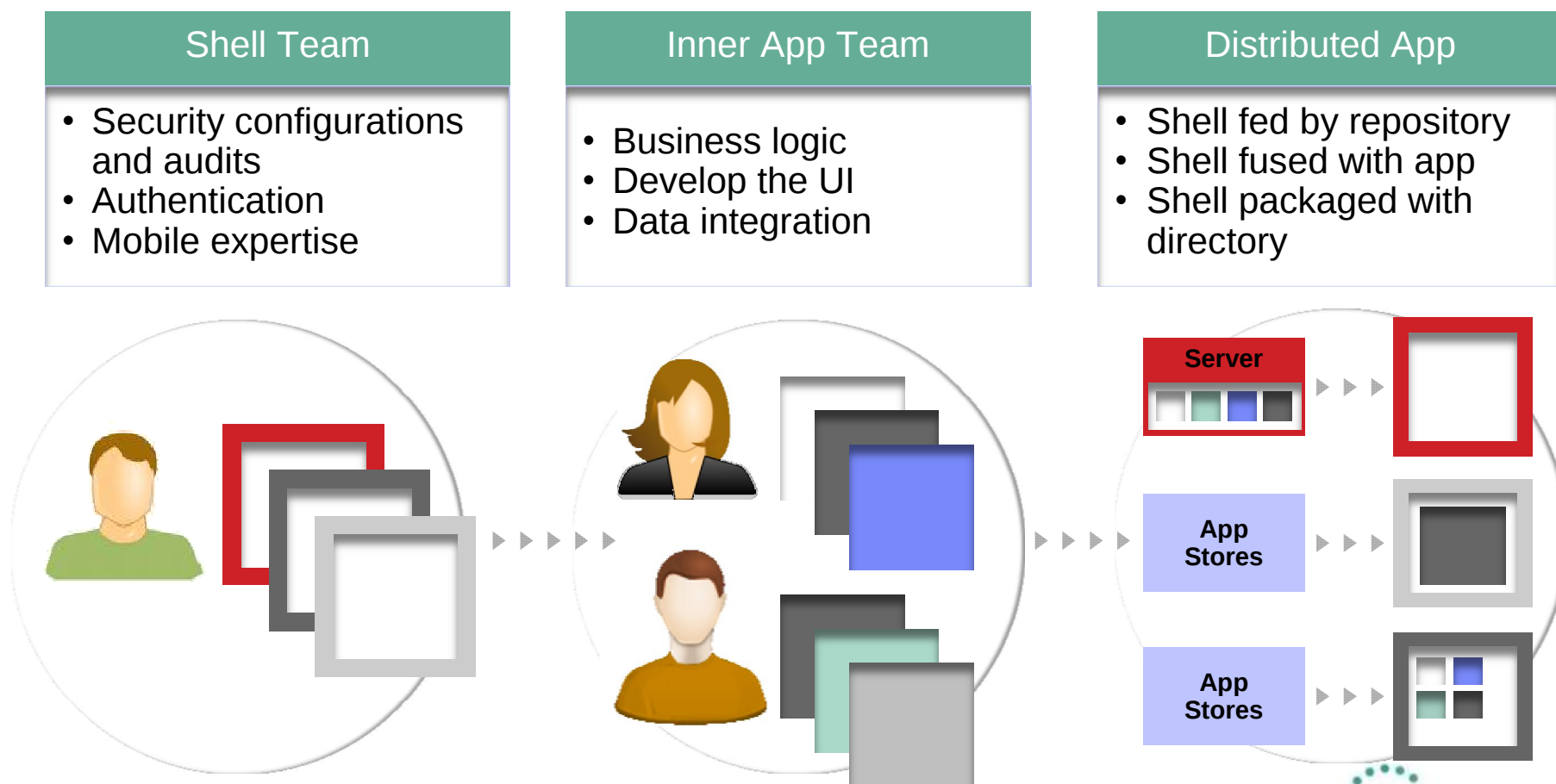
Invocation Result of procedure: 'GetBalance' from the Worklight Server:

```
{
  "errors": [],
  "info": [],
  "isSuccessful": true,
  "result": {
    "NS1": "urn://bankingapplication/retailbank_V1",
    "lastUpdated": "20/06/2012 15:08:19",
    "returnValue": "1000.00"
  },
  "statusCode": 200,
  "statusReason": "OK",
  "warnings": []
}
```



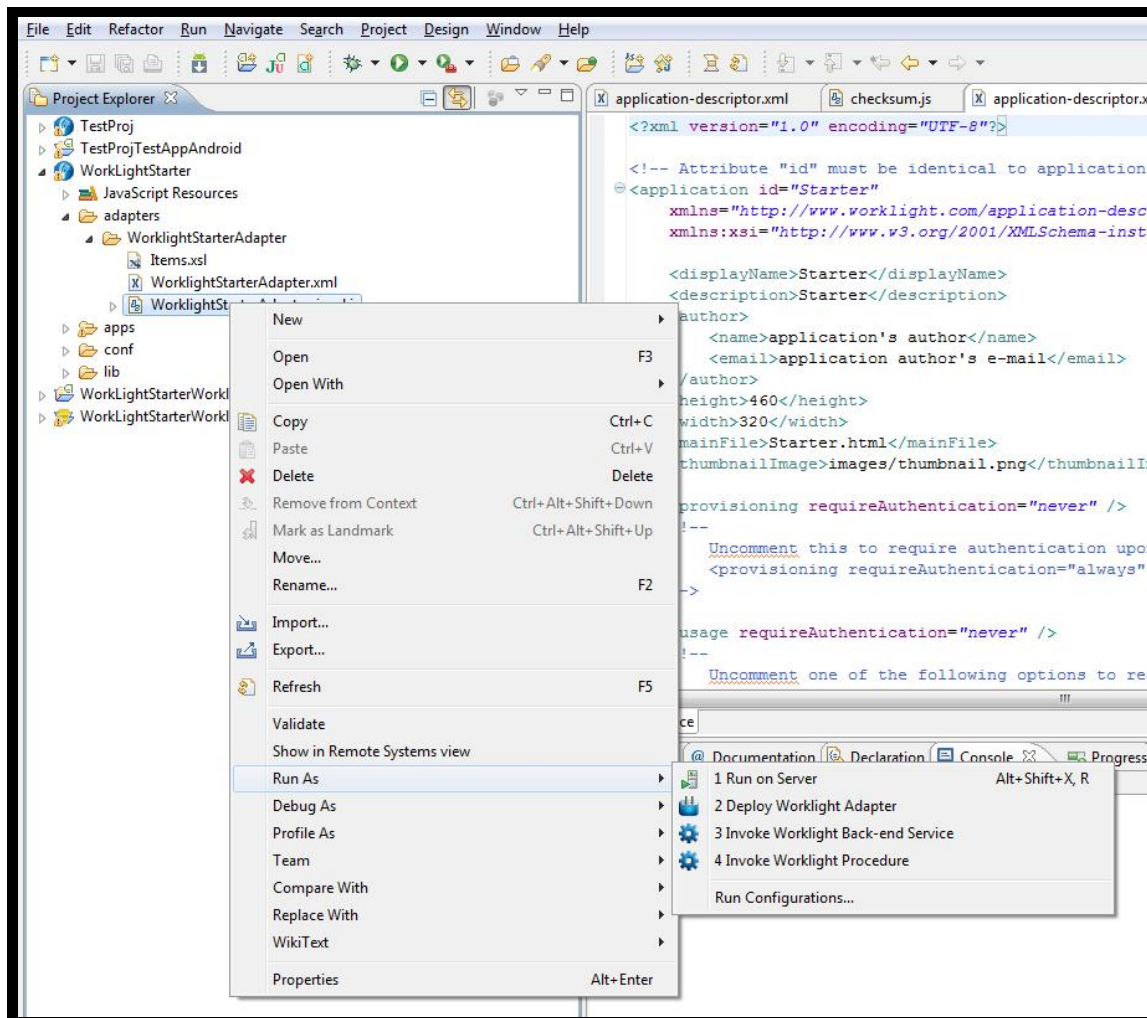
The Shell-based application

Reducing the barriers of mobile development, making it ubiquitous across the organization, by compartmentalizing skill-sets and responsibilities



Complete your sessions evaluation online at SHARE.org/AnaheimEval

Back-end integration



Secure back-end integration

XML-based declarative specification

Multi-source data mashups

Eclipse plug-in supporting auto-complete and validation

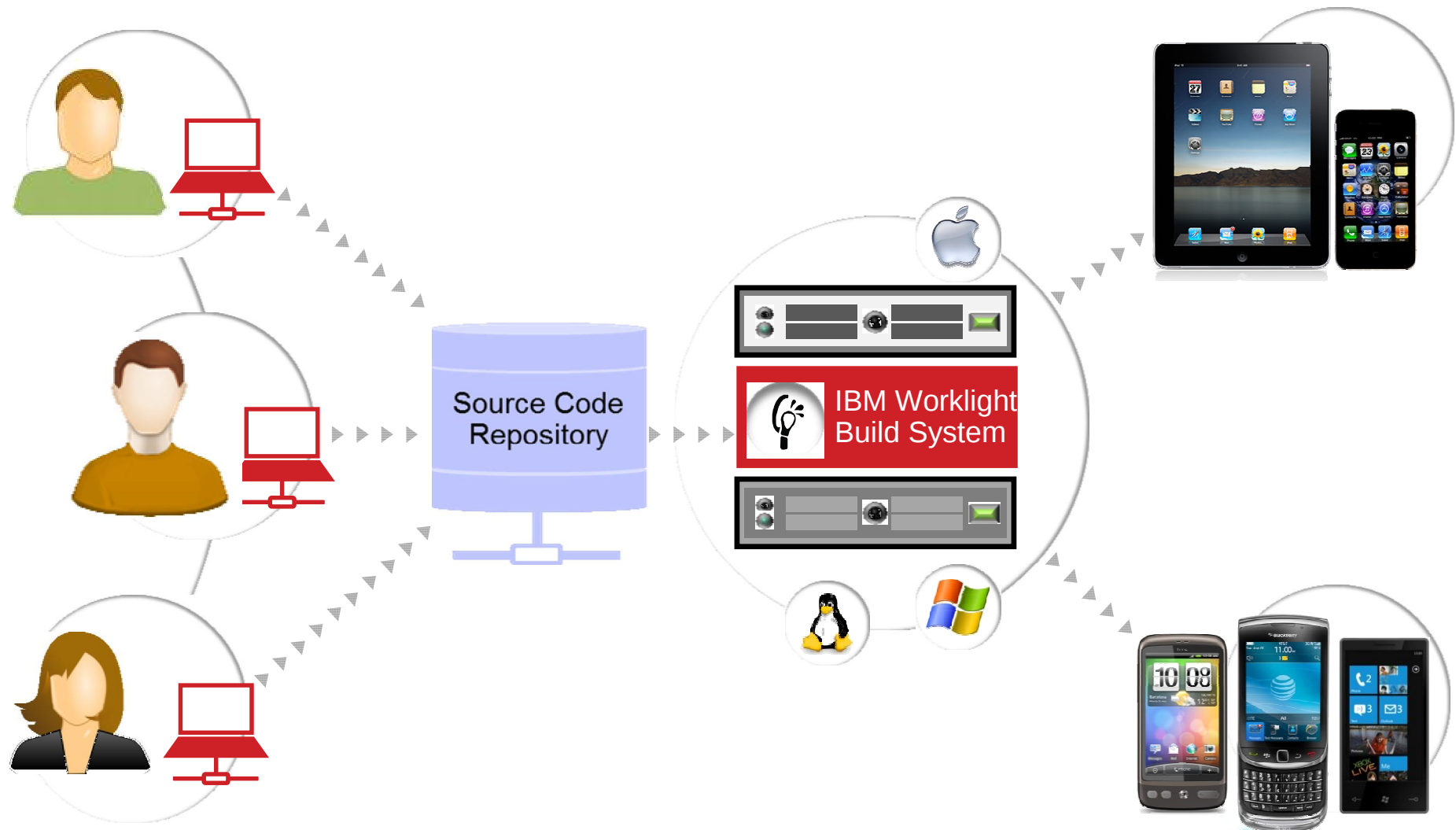
Simplified adapter testing

Server-side debugging

Web services and JDBC integration

Access to session data and user properties

Centralized Build



Complete your sessions evaluation online at SHARE.org/AnaheimEval



Session authentication management

Step 1 – Unauthenticated session

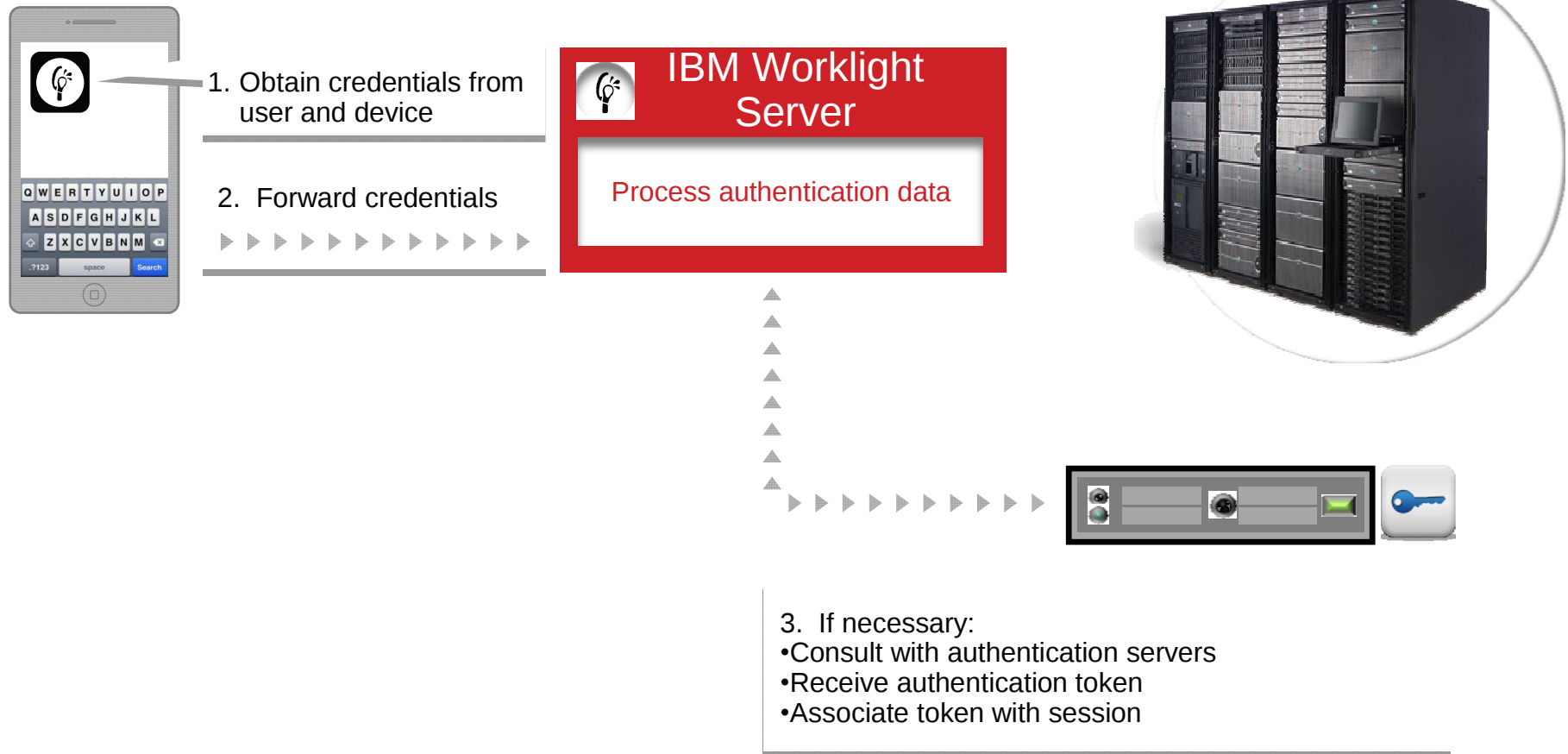


Session:

- Created on first access from client
- Identified using session cookie
- Associated data is stored on the server

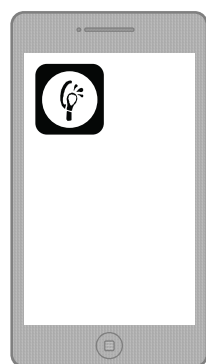
Session Authentication management

Step 2 – Authentication



Session Authentication management

Step 3 – Authenticated session



1. Procedure call on authenticated session



3. Procedure result

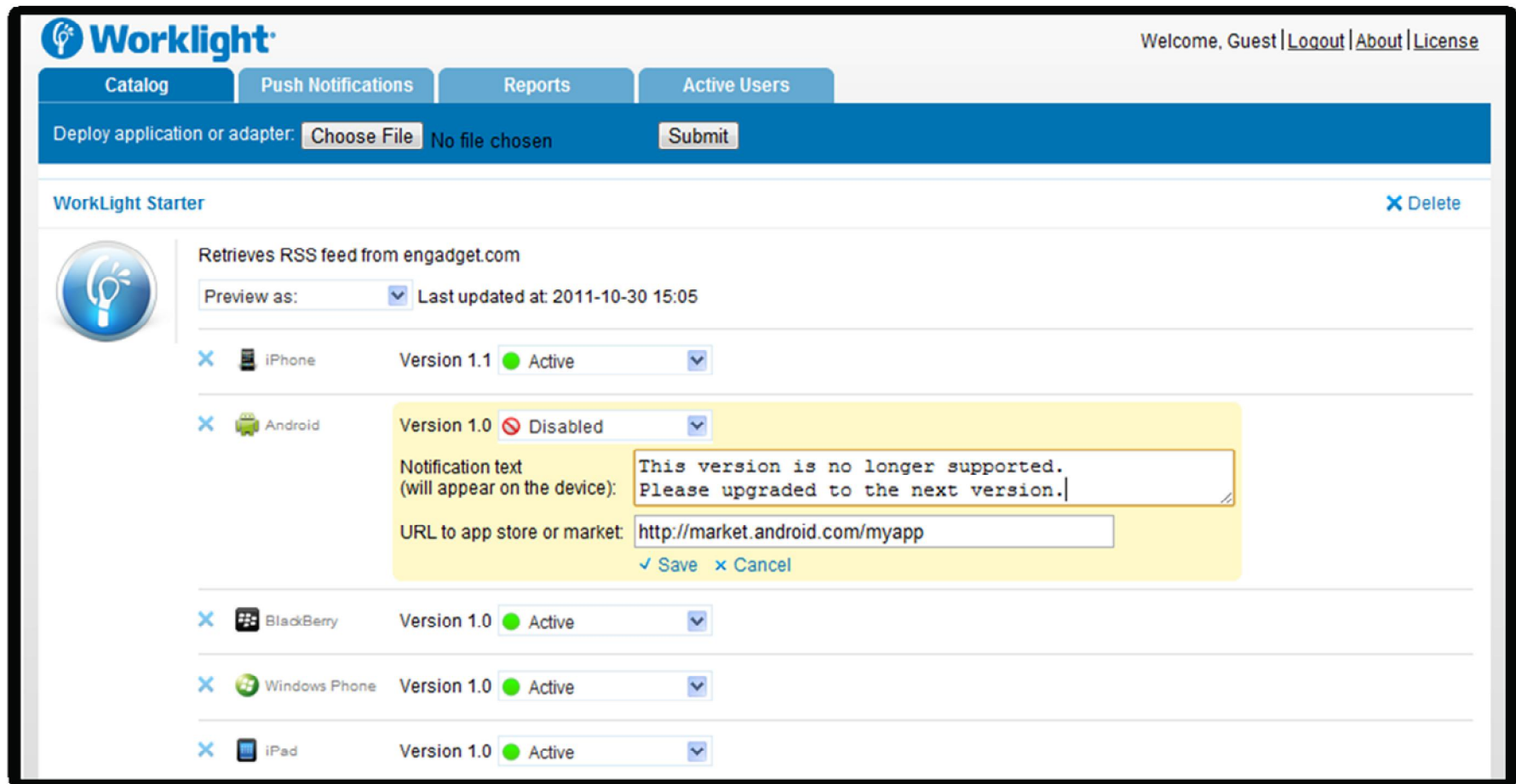


IBM Worklight Server	
Authenticated token associated with session	
Session ID	Auth Tokens/State
2bd4296a3f2	Realm 1: 25418 Realm 2: -----
25617ff82a9	Realm 1: ----- Realm 2: a6ca9
89a77921b0	Realm 1: 7b8fdf Realm 2: 6a8a3



2. Access back-end service using authentication token

Dynamic control of deployed apps



The screenshot shows the Worklight Starter web interface. At the top, there's a navigation bar with 'Catalog', 'Push Notifications', 'Reports', and 'Active Users'. Below this is a deployment bar with 'Deploy application or adapter: Choose File No file chosen Submit'. The main content area is titled 'WorkLight Starter' and features a 'Delete' link. A lightbulb icon represents the selected application. The application description is 'Retrieves RSS feed from engadget.com'. Below this, there's a 'Preview as:' dropdown and a 'Last updated at: 2011-10-30 15:05' timestamp. The application is listed for five devices: iPhone (Version 1.1, Active), Android (Version 1.0, Disabled), BlackBerry (Version 1.0, Active), Windows Phone (Version 1.0, Active), and iPad (Version 1.0, Active). The Android entry is highlighted in yellow, and a modal dialog is open for it. The dialog contains a 'Notification text' field with the text 'This version is no longer supported. Please upgraded to the next version.' and a 'URL to app store or market' field with the URL 'http://market.android.com/myapp'. There are 'Save' and 'Cancel' buttons at the bottom of the dialog.

- Centralized control of all installed applications and adapters
- Remotely disable apps by device and version
- Customize user messages

Push services management



Worklight Welcome, Guest | [Logout](#) | [About](#)

Catalog **Push Notifications** Reports Active Users

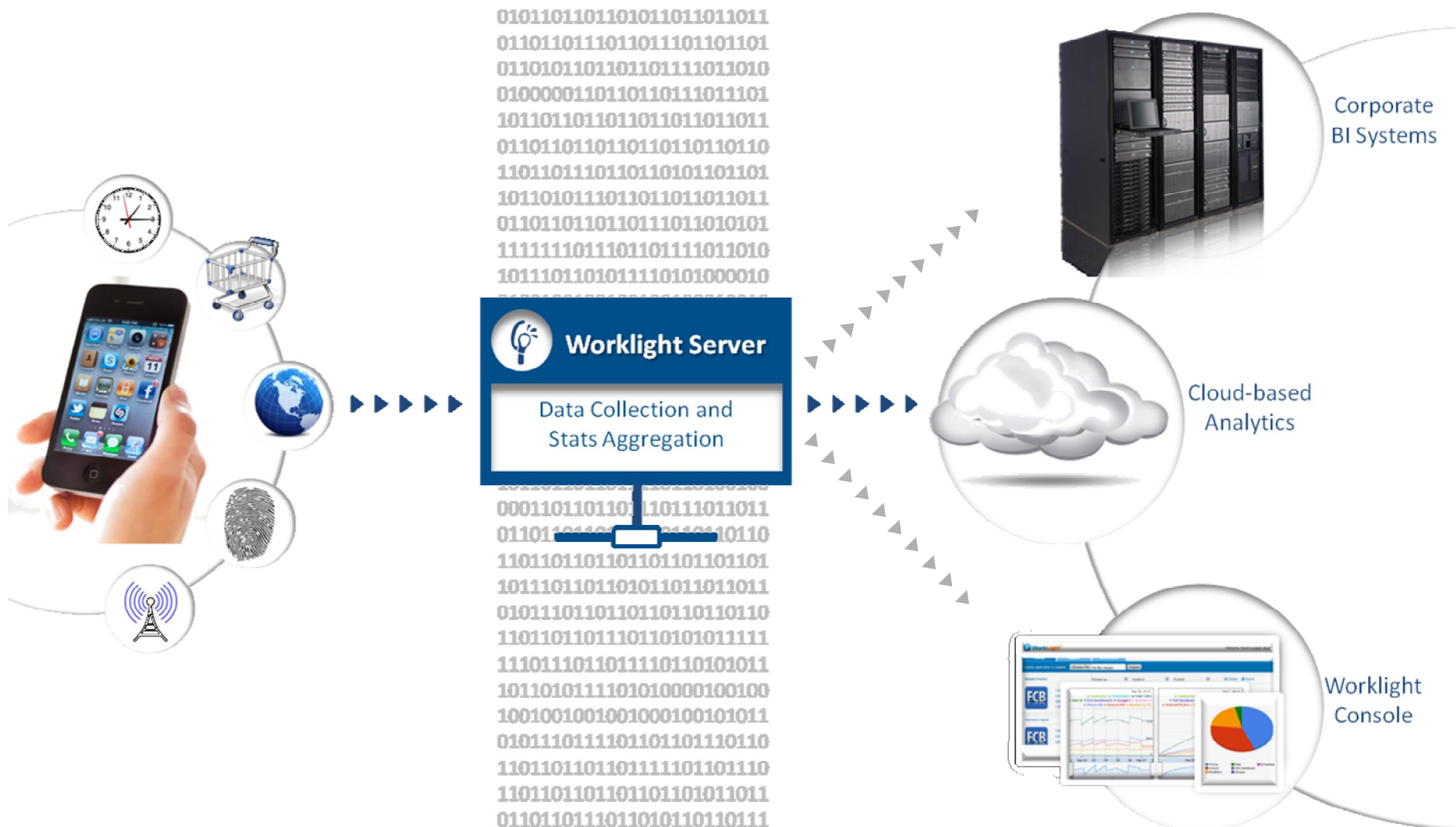
Event Sources	Push Services	Notifications to Apps
Event Source 1 Active Adapter 1 831,792 subscribers Disable	Apple Active Disable Get error report	Application 1 Notifications Disabled Enable
Event Source 2 Disabled Adapter 2 831,792 subscribers Enable	Google Error Waiting to complete authentication Enter the text above Refresh Image Submit	Application 2 Notifications Active Disable
		Application 3 Notifications Active Disable

© Copyright 2011 Worklight Inc. All rights reserved.

Complete your sessions evaluation online at SHARE.org/AnaheimEval

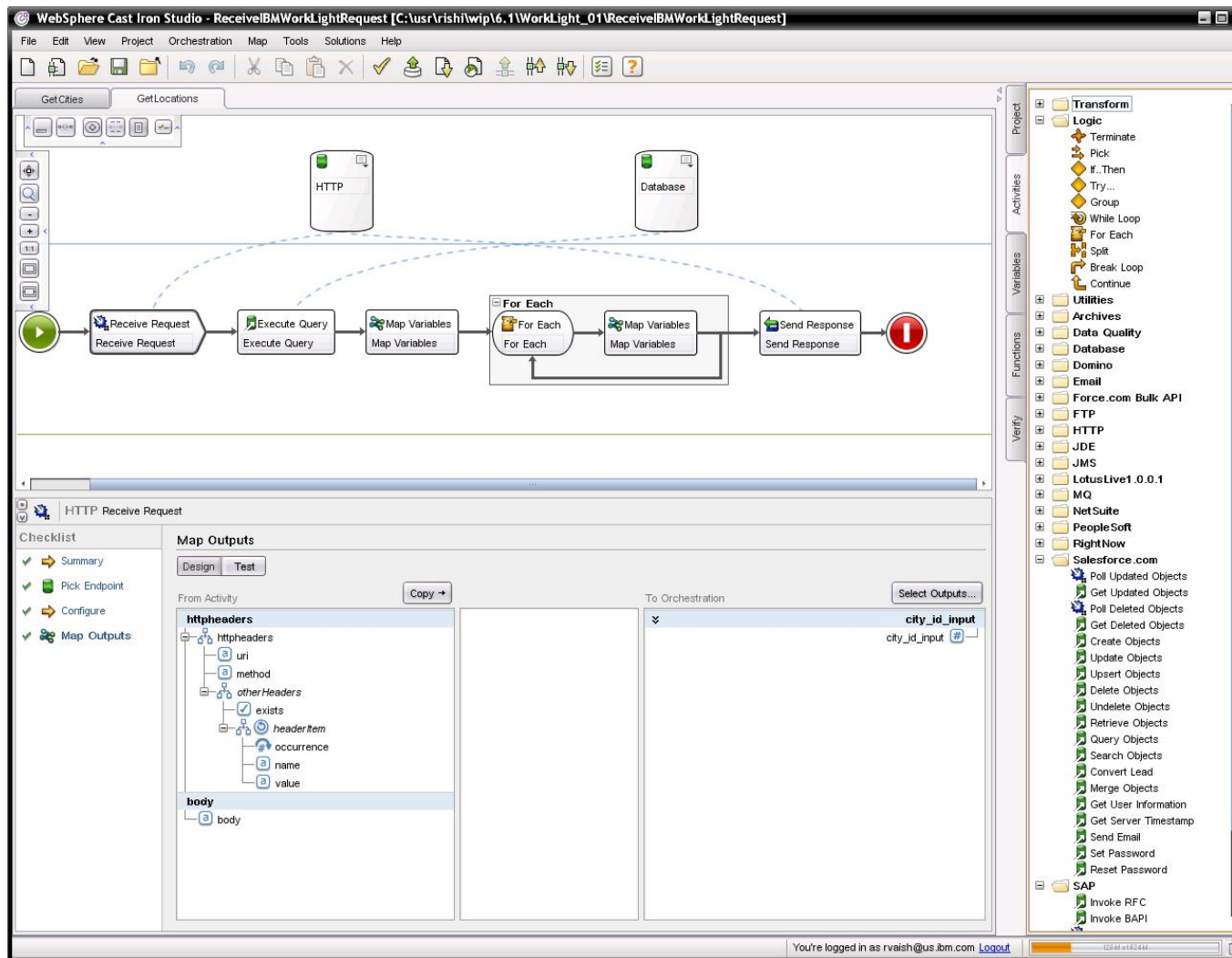


Data collection and analytics



Complete your sessions evaluation online at SHARE.org/AnaheimEval

Cast Iron Flexible Micro-flow Engine – Receive and Send Data to Worklight



Complete your sessions evaluation online at SHARE.org/AnaheimEval



Cast Iron Flexible Micro-flow Engine – Access many applications



- + Utilities
- + Archives
- + Data Quality
- + Database
- + Domino
- + Email
- + Force.com Bulk API
- + FTP
- + HTTP
- + JDE
- + JMS
- + LotusLive1.0.0.1
- + MQ
- + NetSuite
- + PeopleSoft
- + RightNow
- + Salesforce.com
- + SAP
- + Siebel
- + SugarCRM
- + Taleo
- + Web Services

- [-] Salesforce.com
 - [-] Poll Updated Objects
 - [-] Get Updated Objects
 - [-] Poll Deleted Objects
 - [-] Get Deleted Objects
 - [-] Create Objects
 - [-] Update Objects
 - [-] Upsert Objects
 - [-] Delete Objects
 - [-] Undelete Objects
 - [-] Retrieve Objects
 - [-] Query Objects
 - [-] Search Objects
 - [-] Convert Lead
 - [-] Merge Objects
 - [-] Get User Information
 - [-] Get Server Timestamp
 - [-] Send Email
 - [-] Set Password
 - [-] Reset Password
- [-] SAP
 - [-] Invoke RFC
 - [-] Invoke BAPI
 - [-] Receive IDOC
 - [-] Send IDOC



ce.com Object Type

Object Type:

Internal ID:

Field Preferences

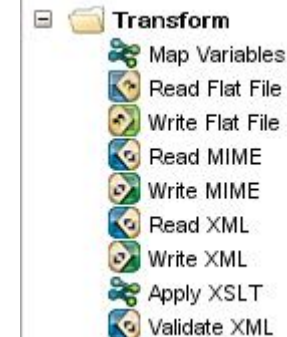
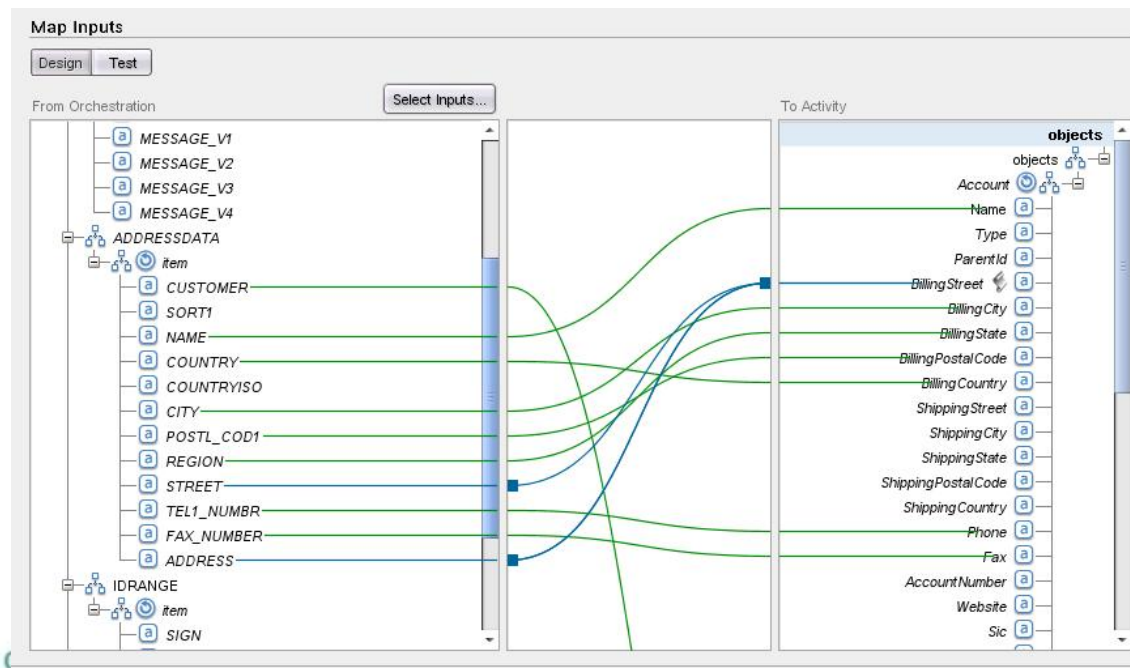
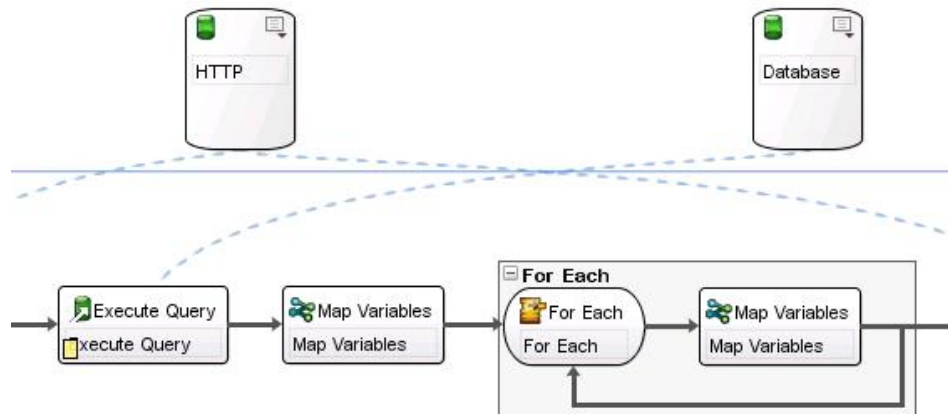
Select the fields you would like to map by selecting the check box next to the field name. Note that custom fields have an "__c" suffix for their field name.

Name	Label	Type
☐ Id	Account ID	id
☐ Name	Account Name	Name
☐ Type	Account Type	Picklist
☐ ParentId	Parent Account ID	Lookup(Account)(Account)
☐ BillingStreet	Billing Street	Text Area(255)
☒ BillingCity	Billing City	Text(40)
☒ BillingState	Billing State/Province	Text(20)
☒ BillingPostalCode	Billing Zip/Postal Code	Text(20)
☒ BillingCountry	Billing Country	Text(40)
☒ ShippingStreet	Shipping Street	Text Area(255)
☒ ShippingCity	Shipping City	Text(40)
☒ ShippingState	Shipping State/Province	Text(20)
☒ ShippingPostalCode	Shipping Zip/Postal Code	Text(20)

Complete your sessions evaluation online at SHARE.org/Ana

in Anaheim
2012

Cast Iron Flexible Micro-flow Engine – Aggregate and transform data



Endpoint Manager Mobile security measures



Mechanism	Benefits	Details
Encrypted offline cache	Protect against stealing sensitive information via malware, stolen devices	- Uses AES256 and PKCS #5 for on-device encrypted storage of app-generated data, with random server-generated numbers for high security - Allows user authentication when server is offline - Implemented in JS (highly obfuscated) with optional native performance enhancements
SSL identity verification for AJAX	Protect against man-in-the-middle attacks	Client-side AJAX framework automatically verifies IBM Worklight-server credentials
Client code attestation	- Prevent impersonation by phishing apps - Protect apps from manipulation by malware	- Challenge-response based mechanism for proving client-application identity - Uses tamper-resistant self-inspecting code
Remote code updates	Ensure timely propagation of critical security updates to entire install base	New versions of the code can be distributed without requiring update of the app (currently JS/HTML)
Remote disable of specific versions	Ensure timely propagation of critical security updates to entire install base	Server-side console allows configuration of allowed app versions. Administrator can force users to install security updates to the native code
Authentication process framework	Lower the cost and complexity of robust integration with the authentication infrastructure	- Server-side architecture for integration with back-end authentication infrastructure based on JAAS, with Authentication realms - Client-side framework for asynchronous login requests on session expiration
Server-side safeguards	- Prevention of SQL injection - XSRF protection	- Prepared-statement enforcement - Validation of submitted data against session cookie
Device identification	Prevent account-hijacking	- Safely report device ID to the server - Identifying a user with specific devices

Complete your sessions evaluation online at SHARE.org/AnaheimEval

Endpoint Manager Mobile security measures

- Continued



Mechanism	Benefits	Details
Enterprise SSO integration	• Leverage existing enterprise authentication facilities and user credentials • Enable employee-owned devices	• Client side mechanism obtains and encrypts user credentials, sends to the server with requests • Encryption incorporates user-supplied PIN, Server-side secret and DID • Credentials cannot be retrieved from lost or stolen device
VPN alternative	• Enable the secure delivery and operation of mobile applications for employee owned devices or device types not allowed on the corporate network • Enable the secure delivery in cases where the installation of VPN client on mobile devices is not possible or complicated to manage	• Client side and server side framework act as SSL based VPN • Network access control and policies pre-configured in the client side framework layer • Network access and security measures updated using server side framework • On device encrypted storage to prevent compromise of sensitive data

Trademarks and Disclaimers

Copyright IBM Corporation 2012. All rights reserved.

- IBM, the IBM logo, ibm.com, WebSphere, DB2, Cast Iron, and Rational are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both. If these and other IBM trademarked terms are marked on their first occurrence in this information with the appropriate symbol (® or ™), these symbols indicate U.S. registered or common law trademarks owned by IBM at the time this information was published. Such trademarks may also be registered or common law trademarks in other countries. A current list of IBM trademarks is available on the web at “[Copyright and trademark information](http://www.ibm.com/legal/copytrade.shtml)” at www.ibm.com/legal/copytrade.shtml.
- Adobe is either a registered trademark or trademark of Adobe Systems Incorporated in the United States, and/or other countries.
- Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.
- Microsoft and Windows are trademarks of Microsoft Corporation in the United States, other countries, or both.
- Java and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.
- Other company, product, and service names may be trademarks or service marks of others.
- Information contained within is for informational purposes only, and is provided 'as-is' without any warranties, either expressed or implied. References in this publication to IBM products or services do not imply that IBM intends to make them available in all countries in which IBM operates.